

T-28 Trojan

in action



Aircraft Number 89

squadron/signal publications



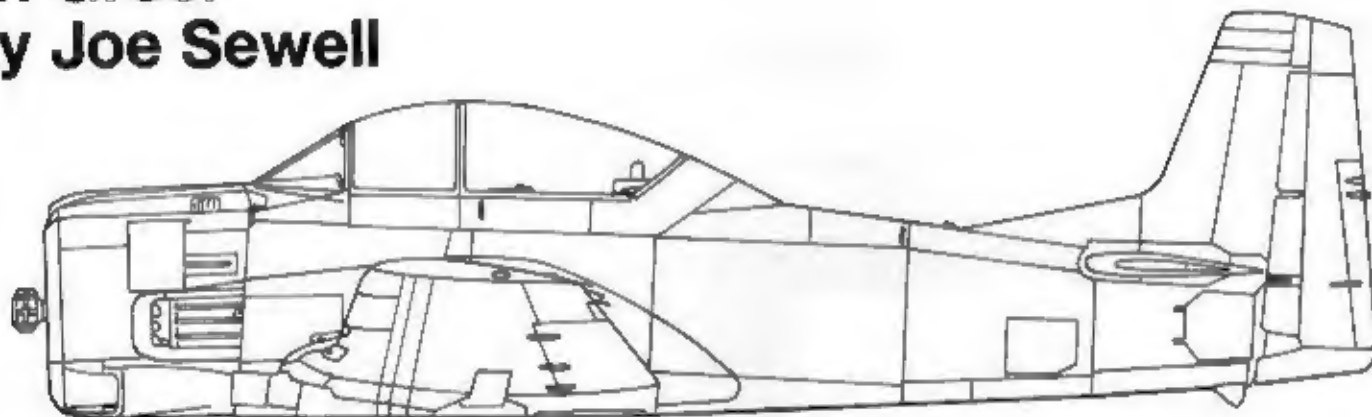
T-28 Trojan

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By Al Adcock

Color by Don Greer

Illustrated by Joe Sewell



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INTRODUCTION

Trainer aircraft have always played a major role in military aviation history, often performing roles for which they were never designed. Before military pilots fly high performance tactical aircraft, they must first learn the basics of flight. This is the role of the military trainer. Training military student pilots is not a glamorous job, however, it is a very necessary and vital one. To be an effective trainer, an aircraft must possess certain qualities such as an ease of handling and a forgiving nature. These qualities allow the student to smoothly progress through the training cycle; from primary training, through advanced training, and finally into combat training in high performance aircraft.

Over the years American military trainers have been designed and manufactured by a number of aircraft companies such as Douglas, Curtiss, Cessna, and North American. North American, however, has been especially successful at designing and building military trainers, having designed and built two of the most famous US military trainers, the T-6 Texan and T-28 Trojan.

North American Aviation (NAA) was formed during 1930 when the General Motors Corporation formed the General Aviation Corporation as a holding company for Fokker Aircraft. North American Aviation acquired General Aviation Corporation during 1934, becoming a full-fledged aircraft manufacturing concern with J.H. 'Dutch' Kindelberger being appointed as President and General Manager. Kindelberger came to NAA from Douglas Aircraft, bringing with him Lee Atwood to fill the position of Chief Engineer. Kindelberger and Atwood formed an aviation industry team that, although starting out with only 150 employees, would eventually go on to produce more aircraft than any other American manufacturer. During 1934 Kindelberger and Atwood designed and produced the BT-9 basic trainer prototype. The BT-9 won an Army Air Corps contract for forty-two aircraft during 1935, becoming the first of thousands of military trainers produced by North American Aviation.

A total of 266 BT-9s were produced between 1935 and 1938 at the North American production facility located on Los Angeles International Airport. The BT-9 led to the T-6 (originally designated BC-1 for Basic Combat 1), which was manufactured in higher numbers than any other American trainer aircraft. By the end of the Second World War more than 15,400 T-6s had been produced. T-6s were also used by the Navy under the designation SNJ. The SNJ was externally identical to the USAAF T-6, with the exception of an arrestor hook for carrier operations. The T-6 went on to serve in the Korean War as a Forward Air Control aircraft and remained the USAF's primary basic trainer for the immediate post war years. North American was still modifying and rebuilding T-6/SNJ's, for both the USAF and USN, as late as 1953.

XSN2J-1

During 1946 North American had responded to a Navy request for a replacement for the SNJ. The new trainer bore a strong family resemblance to the SNJ, being a low wing all-metal aircraft with conventional landing gear and an arrestor hook for carrier operations. Designated the XSN2J-1, the trainer was powered by a 1,100 hp R-1830-78 Wright Cyclone driving a Hamilton Standard three blade propeller. The aircraft had a top speed



The North American AT-6 Texan was the standard Second World War trainer for both the USAAF (T-6) and US Navy (SNJ) and trained more pilots than any trainer aircraft in history. Over 15,000 Texans were manufactured during the production life of the aircraft. (Aviation Photo Exchange)

tion stated that the engine of choice was the 800 hp R-1300 Wright Cyclone driving a two blade Aero Products propeller. The R-1300 had been developed by Wright from the R-2600 two row air cooled radial engine by eliminating the rear bank of cylinders. This produced a lower powered but lighter weight engine. This engine would be the last new radial engine design produced by Wright for the military. Later, Lycoming would be named as the prime contractor for the R-1300, producing the engine under license from Wright.

The specification also stated that the aircraft should emulate the performance and flight characteristics of a jet powered aircraft. Since all US Air Force jet aircraft were equipped with tricycle landing gear, the specification required that the trainer be equipped with tricycle landing gear. The USAF further stated that the company with the winning design would be required to build two flying prototypes for evaluation by the USAF before a contract would be awarded.

Two aviation companies submitted designs to the Air Force for consideration. Douglas Aircraft Company proposed a highly unusual configuration under the designation XT-30. The aircraft was conventional in every way except for the engine layout. Douglas placed the Wright Cyclone engine amidships, similar to the layout used in the Bell P-39 and P-63 fighters of the Second World War. The Air Force, however, felt that this layout would



One of the three North American XSN2J-1 prototypes (BuNo 121449) parked on the ramp at NAS Patuxent River during 1948. Designed originally as a replacement for the Navy's SNJ trainer, the XSN2J-1 would become the basis for the XBT-28. (W. M. Bodie via W. Larkins)

primary and intermediate training cycles, leading directly into transition to the Lockheed T-33 jet advanced trainer.

The nose wheel retracted into a well on the underside of the fuselage, while the two main landing gear members, each equipped with Goodyear disk brakes, retracted inward into wells located on the underside of the wing and fuselage. Besides being steerable, the nose wheel strut also carried a movable taxi light to assist in night operations.

The XBT-28 prototype emerged as a conventional semi-monocoque, low wing, all-metal aircraft powered by the specified 800 hp R-1300 Wright Cyclone air cooled radial engine driving a 10 foot diameter two blade Aero Products propeller. The instructor and student were housed in tandem cockpits under a full blown 'bubble' canopy with a roll pylon being mounted between the front and rear cockpits. The prototype was large, being close in size to some of the piston engined fighters still in service. It had a wing span of 40 feet 1 inch, a length of 32 feet, and a height of 12 feet 8 inches, with a gross takeoff weight of 6,000 pounds. The airframe was stressed for plus 6.9 Gs and minus 2 Gs.

The first XBT-28 (serial number 48-1371) prototype flew on 26 September 1949. Flight tests revealed that the performance of the prototype was impressive with a top speed of 292 mph, a service ceiling of 31,650 feet, and a range of 800 nautical miles. Stall speed in the landing configuration was 57 knots with the normal landing speed being 70 knots.

Originally designated the XBT-28, for Basic Trainer 28, both prototypes were fitted with an underfuselage speed brake; a feature which was deleted on the first production aircraft. Just prior to the prototype's first flight the Air Force discontinued the use of the system of identifying trainers by their roles of Primary — 'P', Basic — 'B', and Advanced — 'A'. The 'B' was deleted from the prototype's designation, reclassifying the aircraft as the XT-28. The second prototype (serial 48-1372) quickly joined the first for the flight test program.

After successful completion of contractor and Air Force flight tests, the Air Force awarded North American an initial production contract for 266 aircraft under the designation T-28A Trojan.



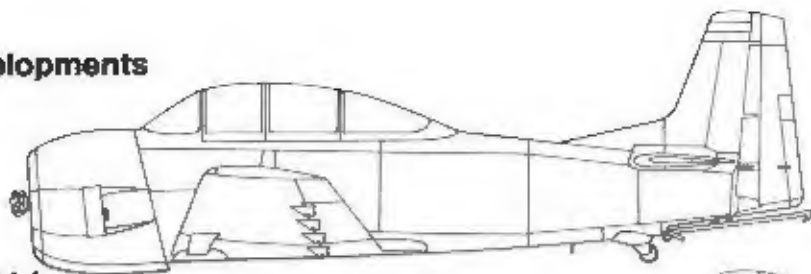
The first XBT-28 prototype (48-1371) was rolled out at the North American plant during September of 1949. The first prototype was fitted with air data probes on each wing tip and an underfuselage speed brake, a feature that would be removed on production aircraft. (National Archives)

Shortly before the XBT-28 made its first flight on 26 September 1949, the Air Force redesignated the aircraft the XT-28. The prototype was overall Natural Metal with a black anti-glare panel. The wing tips and tip of the vertical stabilizer were in Gray. The rear cockpit housed test equipment instead of a second seat. (USAF)

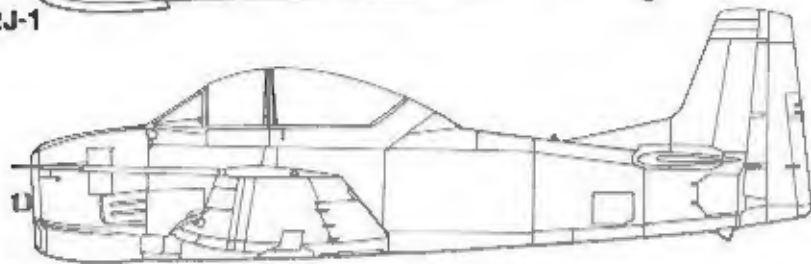


Developments

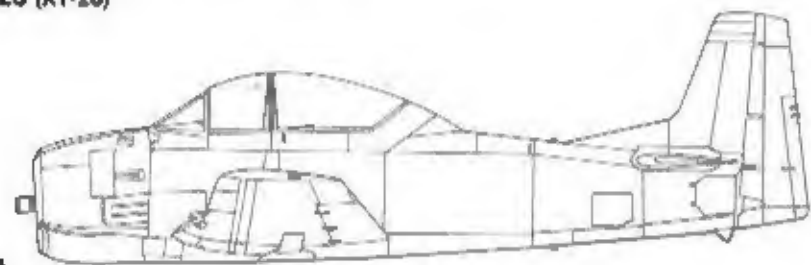
XSN2J-1



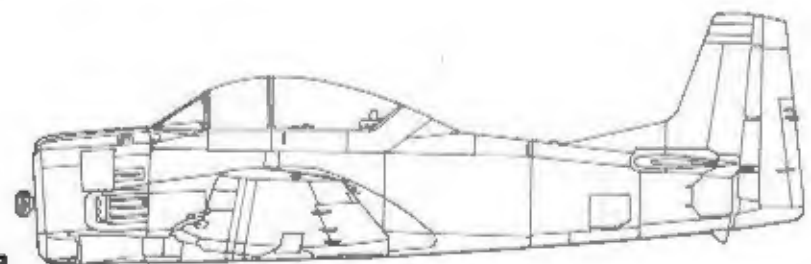
XBT-28 (XT-28)



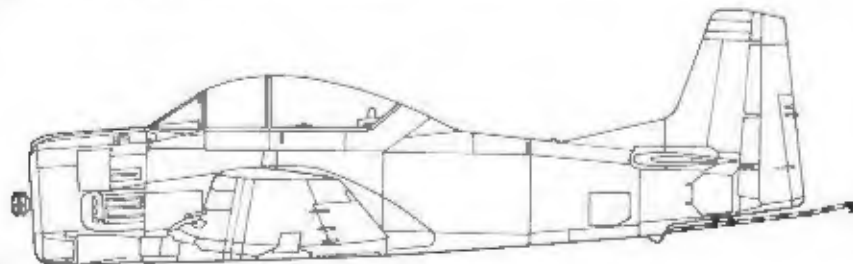
T-28A



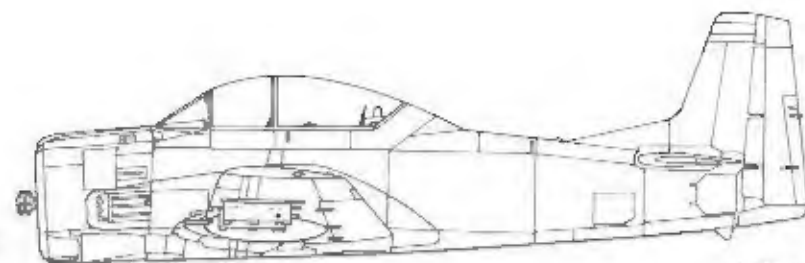
T-28B



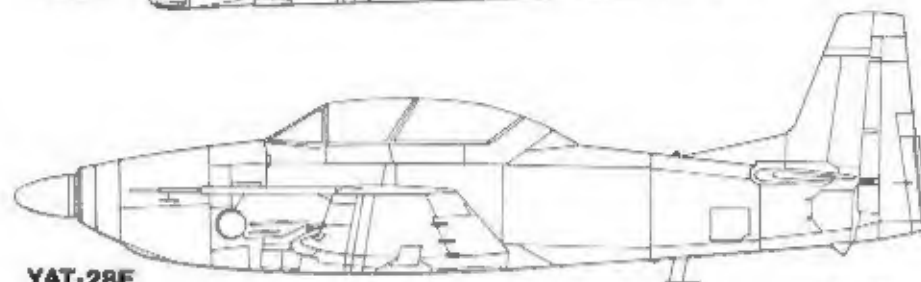
T-28C



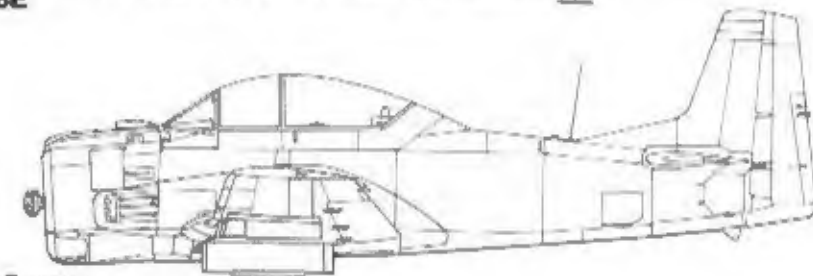
T-28D



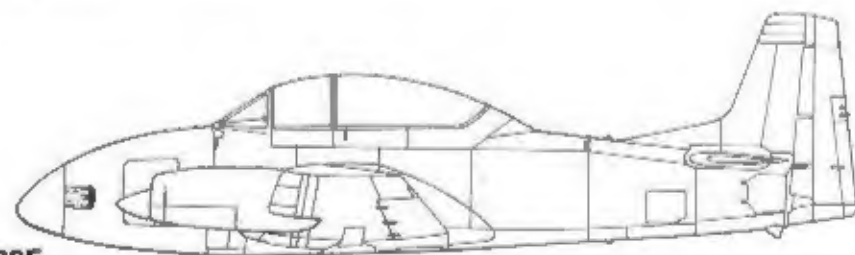
YAT-28E



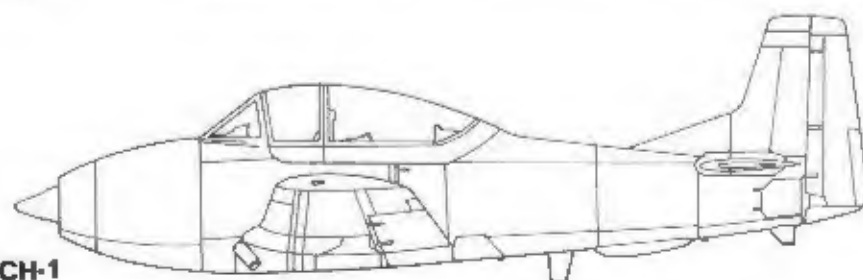
T-28S Fennec



A-28F



T-CH-1



T-28A Trojan

Production T-28As were externally identical to the prototype XT-28 except for deletion of the underfuselage dive brake. In April of 1950 the first production T-28As began entering service with the USAF. The aircraft were assigned to the Air Training Command in the basic training role. Production T-28As (NAA Model 174) were powered by a production 800 hp R-1300-1 Wright Cyclone seven cylinder radial engine driving a 10 foot diameter two blade Aero Products A4222-E1 propeller. With the installation of various items of military equipment (radios and other navigational equipment) the empty weight of the T-28A rose to 5,111 pounds and maximum gross weight went up to 6,365 pounds (365 pounds more than the prototype).

Performance remained near that of the lighter prototype with top speed being slightly reduced to 283 mph at 5,900 feet. The initial rate of climb was 1,870 feet per minute, and service ceiling was 24,000 feet.

The T-28A represented a major improvement in training aircraft and proved to be very popular with both flight and ground crews for its excellent flight characteristics and ease of maintenance. The only drawback with the T-28A was the engine. The 800 hp Wright engine made the T-28A somewhat underpowered. This was deliberate, to give the Trojan the 'feel' of an early jet aircraft. The takeoff ground run was long, especially on hot days, and pilots reported that the aircraft had a 'sluggish' feel in the air. The sound emitted from the engine also earned the T-28 a number of unflattering nicknames such as *Chitty-Chitty Bang Bang*, *Maytag Washer*, and *Maytag Messerschmitt*, along with others that are unprintable. The unusual engine noise was caused by the exhaust system which channeled the exhaust from the seven engine cylinders out through four exhaust stacks mounted on the fuselage sides behind the cowlings.

Midway during the production run of the T-28A, North American made several changes to the airframe. Beginning with aircraft 51-3463 two additional twenty-six gallon fuel tanks were mounted in the wings outboard of the main fuel tanks. This additional fifty-two gallons of fuel brought total fuel on board to 177 gallons, increasing the range of the T-28A from 800 nautical miles to 1,175 nautical miles. Beginning with aircraft 51-3763 the cockpit canopy was modified, being lowered four inches and the roll over pylon between the cockpits was eliminated.

T-28As were manufactured at three different locations. Initial production was at Inglewood, California, however, during 1950 production was moved to North American's Downey, California plant. During 1951 production moved again, this time to Dallas, Texas where NAA produced the last T-28As during 1953.

For armament training, the T-28A could be fitted with various armament packages mounted on wing hard points located under each wing just outboard the landing gear. The armament kit consisted of flush mounted gun pods or a single weapons rack. Two different gun pods could be mounted, either a pod containing two .30 caliber machine guns or a pod with single .50 caliber machine gun. The gun pods were fully self contained carrying the gun, gun chargers, and 100 rounds of ammunition. To avoid damage to the wings the pods had no provision for ejecting spent shell casings. The casings were retained within the pod when the guns were fired and emptied on the ground. When installed, the pods were flush mounted on the wing undersurface and could not be jettisoned in flight.

For bomb and rocket training a single Mk 51 Mod 14 bomb rack could be mounted under each wing in place of the gun pod. These racks were capable of carrying bombs up to 500 pound and/or various aerial rockets. A Mk 8 Mod 5 gunsight and an armament control panel was mounted in the front cockpit. To record gunnery and bombing results, a gun camera could be mounted in the port wing leading edge.

A total of 1,194 T-28As were produced between 1950 and 1953, most going to the USAF. The US Army used a number of T-28As for photographic work during the 1960s.



The fourth production T-28A (49-1494) on the ramp at North American's Inglewood, California assembly plant. This Trojan is painted with a corrosion resistant Light Gray paint on the lower half of the fuselage with the upper half left in Natural Metal. The insignia on the tail is the badge of the Air Training Command. (Hugh Morgan)

An early production T-28A over the California coast during the early 1950s. The three lines coming back off the trailing edge of each wing are static dischargers used to prevent a build-up of static electricity in the airframe. (USAF Via Hugh Morgan)





This T-28A (48-1486) was used by the US Air Force Test Pilots School at Edwards Air Force Base for flight testing and training. The aircraft carried a high visibility paint scheme consisting of Red upper fuselage decking; Yellow fin, rudder, and wing tips; with the fuselage in Natural Metal. (USAF via Hugh Morgan)

Two USAF test pilots walk out to a T-28A (48-1486) on the ramp at the Edwards AFB Test Pilots School to begin another mission. The Test Pilots School operated a number of different aircraft types for both testing and to train new test pilots. (David Menard)



photographing parachute tests at Fort Bragg, North Carolina. These aircraft were eventually replaced by later model T-28s. A number of T-28As were also exported under various military assistance programs to governments friendly to the US, including Argentina (36), Dominican Republic (3), Ecuador (10), Honduras (6), South Korea, Mexico (80), Nicaragua (6), The Philippines, and Saudi Arabia. At least ten T-28As were en route to Cuba, however, most of these aircraft were embargoed at Miami and were never delivered.

The T-28A airframe served as a basis for a number of conversion programs. The T-28D was a re-engined T-28A optimized for the counter-insurgency role, as was the T-28S which were rebuilt T-28As produced in France by Sud Aviation. The YAT-28E was T-28A airframe modified to accept a turboprop engine with strengthened wings for additional underwing stores.

By 1956 the T-28A had been replaced in Air Training Command by the T-34 Mentor (basic training role) and the Cessna T-37 (intermediate training role). As T-28As were phased out of the Air Force inventory they were relegated to Air National Guard fighter squadrons around the country to replace their F-51 Mustangs. The F-51s had reached the limit of their fatigue lives and the Guard was forced to prematurely retire the Mustang. The Air Force considered the Trojan as the best interim replacement available pending arrival of jet fighters for the former Mustang squadrons, and at least four of the seven remaining Mustang squadrons operated T-28As during this period. This is probably the only known time that a trainer was used to replace a fighter within the Air National Guard. The T-28As served until 1959 when the last Air Guard unit equipped with Trojans converted to jet fighters.

Civil Contract Training Program

Contract training of new USAF pilots was an exciting and rewarding experience, according to Will Taylor of Marianna, Florida: a US Navy Ace during WWII and a

This T-28A (51-3494) on the ramp at Fort Bragg NC was used as an instrument trainer and is equipped with a blind flying hood, radio compass, and marker beacon antenna array in the rear cockpit. The only time students normally flew the T-28 from the rear cockpit was during instrument training. (Norman Taylor)



civilian instructor pilot for Graham Aviation during the 1950s flying T-28As. The Air Force had turned over a number of basic training facilities in the southern part of the US to civilian contractors who handled all training and aircraft maintenance on a fixed price contract. The good-year round weather conditions at these bases made them ideal for training large numbers of USAF pilots. Training by civilian contract pilots was not new to the USAF since the practice had been used during the 1930s and 1940s by the Army Air Corps and Army Air Force when they were faced with a lack of sufficient instructor pilots to teach new cadet classes.

Taylor praised the T-28A for its good flight characteristics, however, like so many other T-28 pilots, he didn't like the underpowered engine that was supposed to simulate the characteristics of early jets during takeoff and landing. Taylor described the training cycle as follows:

A typical first flight for a USAF aviation cadet started out with a walk around, inspection of the aircraft. After completion of the walk around the student strapped into the front seat. Students normally occupied the front cockpit throughout their training. The only time that a student used the rear seat was during instrument training under the blind flying hood. The aircraft would then be started, taxied, and flown by the Instructor Pilot (IP) until the aircraft was in the training area in level flight. The controls were then turned over to the student so he could get the feel of the aircraft. This hour long flight was called the 'Dollar Ride', because the instructor pilot traditionally gave the student a dollar. This flight allowed the student a chance to see how he liked flying and gave the IP a chance to look over the student. After the flight the students were debriefed and the flight critiqued. The next day the flight was repeated and on subsequent days more responsibility gradually given to the student. The washout rate was about 10 percent and the majority of students that washed out went on to become navigators or electronics officers so that they could continue to fly.

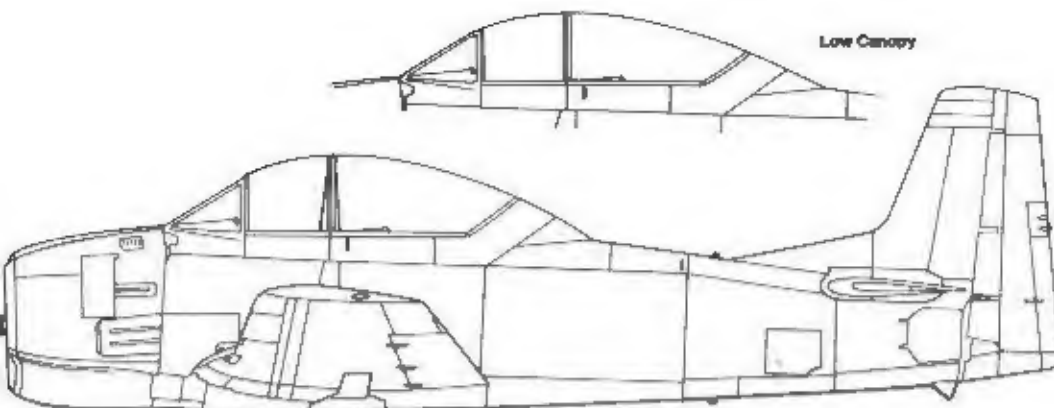
This T-28A (51-3555) was assigned to the Air Training Command (ATC) at Craig AFB, Alabama. 'CRAIG' is carried in Black over the ATC insignia on the fin. The aircraft is overall Natural Metal with a Black anti-glare panel. (Norman Taylor)



This T-28A (51-3528) of the 3512th Primary Training Squadron at Amarillo, Texas was used in the primary training role. The '0' on the fin in front of the aircraft serial number indicated that the aircraft was over ten years old. (Norman Taylor)

A flight of Air Training Command T-28As on a training mission over Texas during the late 1950s. The majority of USAF training bases were in the southern United States to take advantage of the good year-round weather. (Norman Taylor)

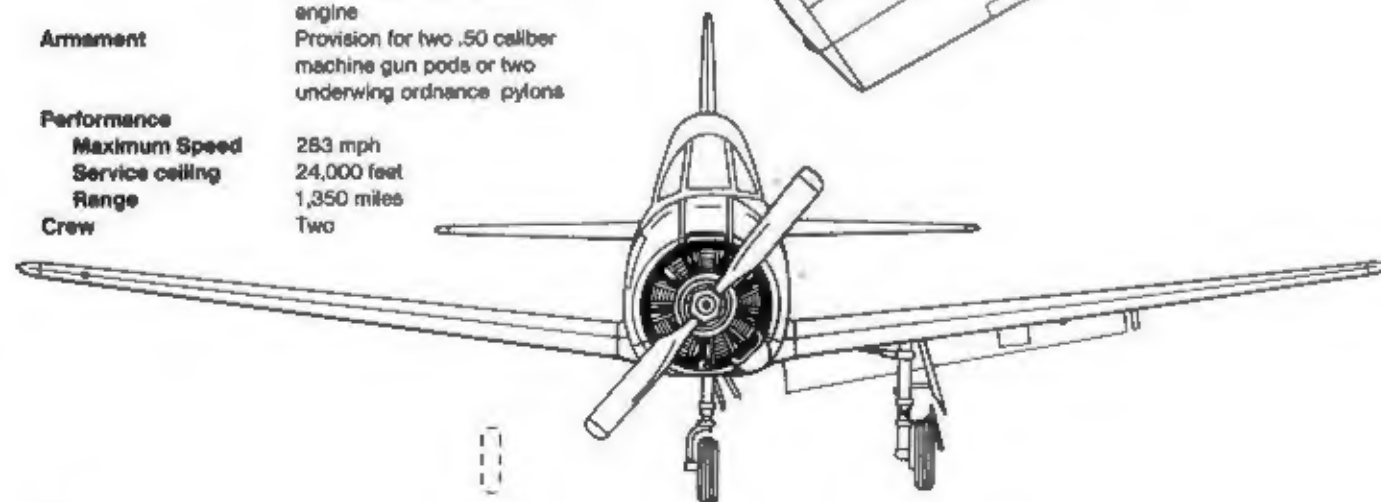
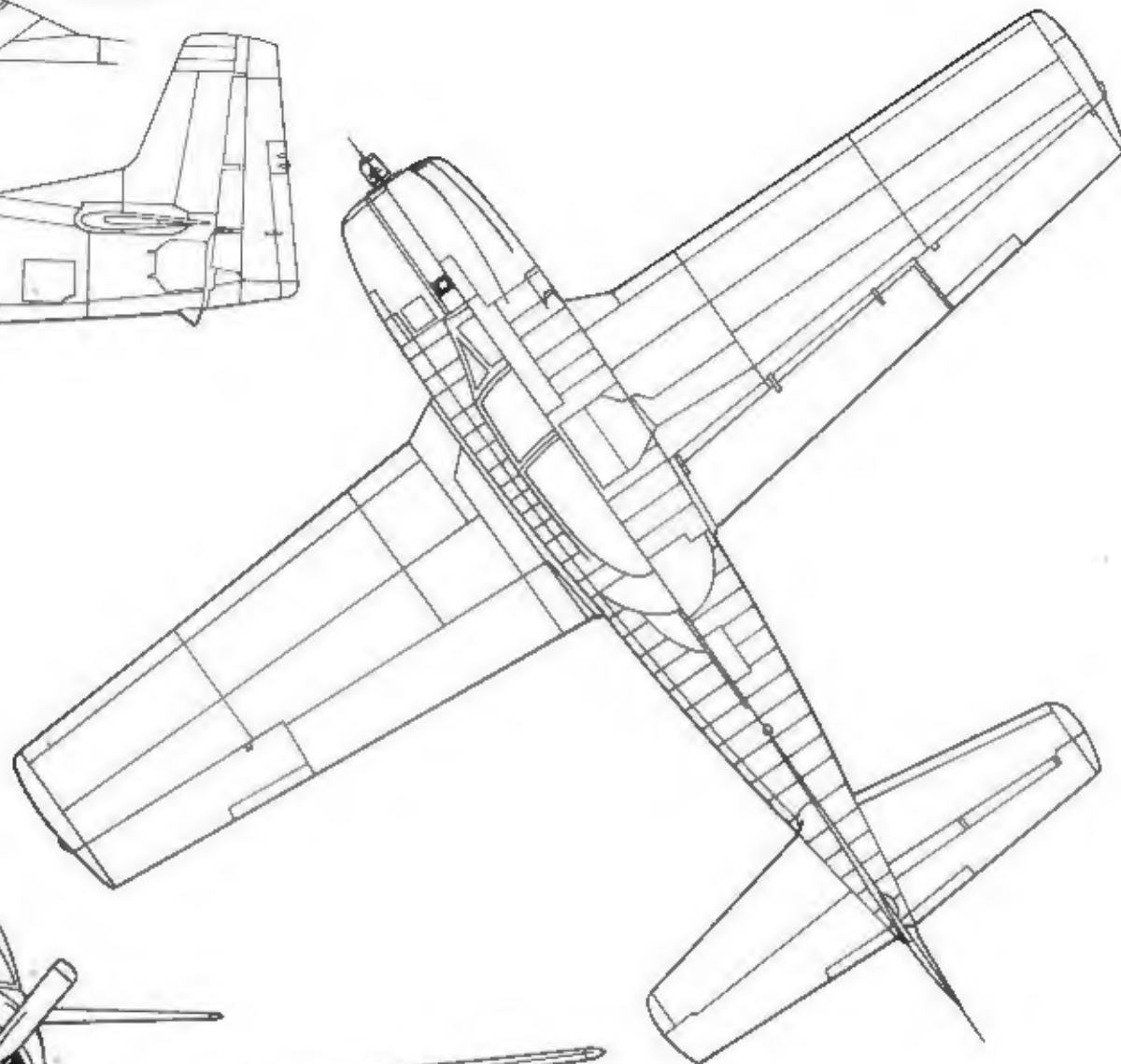




Specifications

North American T-28A Trojan

Wingspan	40 feet 1 inch
Length	32 feet
Height	12 feet eight inches
Empty Weight	5,111 pounds
Maximum Weight	6,365 pounds
Powerplant	One 800 hp R-1300-A Wright Cyclone air cooled radial engine
Armament	Provision for two .50 caliber machine gun pods or two underwing ordnance pylons
Performance	
Maximum Speed	283 mph
Service ceiling	24,000 feet
Range	1,350 miles
Crew	Two





This T-28A (51-3673), finished in overall Light Gray with Day-Glo Orange identification panels, was assigned to the 3512th Primary Training Squadron at Randolph AFB, Texas. The anti-glare panel, propeller blade backs, and the tip of the fin are in Black, while the exhaust area is in a Dark Gray protective paint. (Norman Taylor)

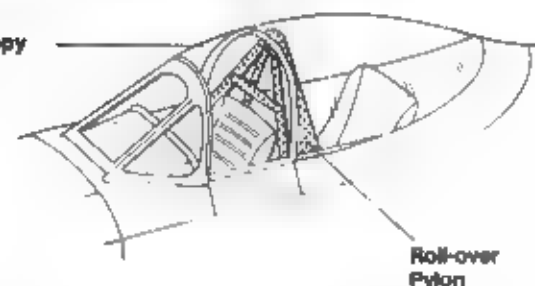
This late production T-28A of the 3512th Primary Training Squadron at Randolph AFB, Texas has the deleted roll-over pylon and lower canopy first introduced midway during T-28A production. The Trojan is overall Light Gray with a Black anti-glare panel and Red fin tip. (Norman Taylor)



Canopy Development

T-28A
(Early)

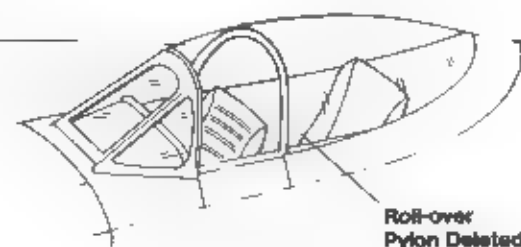
High Canopy



Roll-over
Pylon

T-28A
(Late)

4 Inch
Lower
Canopy



Roll-over
Pylon Deleted



Midway during production of the T-28A the built-in roll-over pylon was eliminated and the canopy was lowered four inches. These modifications improved forward visibility for the instructor in the rear seat and increased top speed by 10 knots. (National Aviation and Space Museum)

Carrying the 'buzz' number TL-490 in large letters on the rear fuselage, this T-28A (51-7490) was assigned to the Air Training Command at Williams AFB, Arizona. The use of 'buzz' numbers was gradually discontinued when camouflage was introduced on Air Force aircraft during the early 1960s. (William T. Larkins)



This T-28A (51-7741) was assigned as an intermediate trainer with the Air Training Command. The aircraft has the lower fuselage painted in a Medium Gray protective lacquer, while the remainder of the aircraft is in Natural Metal. (Norman Taylor)

A T-28A of an Air Training Command squadron based at Keesler AFB, Mississippi during October of 1955. The USAF purchased a total of 1184 T-28As built at three different North American plants, two in California and one in Texas. (Norman Taylor)





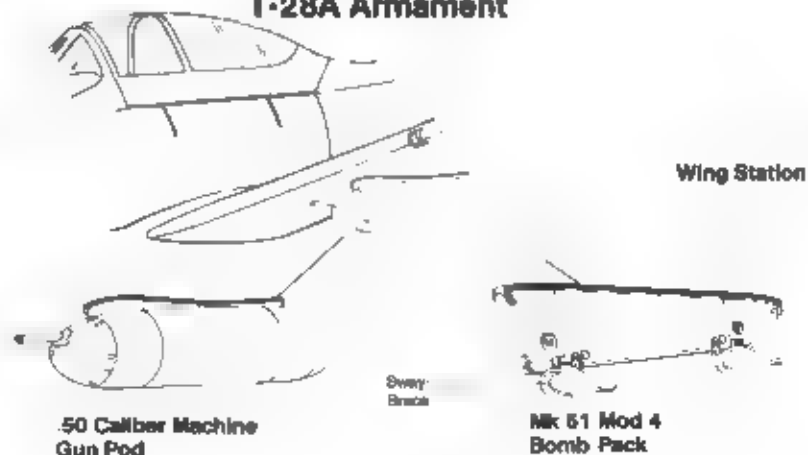
An overall Light Gray T-28A (51-7560) of the 3512th PTS parked on the ramp at Webb AFB, Texas during May of 1965. The gloss acrylic paint was found to be highly radar reflective and easier to keep clean than the earlier lacquer paints. (Norman Taylor)

This T-28A (52-1203) on the ramp at Sheppard AFB, Texas in November of 1971 has the canopy partially open to cut down on heat buildup inside the cockpit. The Trojan is overall Light Gray, the tail bands and anti-glare panel are in Black, and the aircraft carries the ATC badge and an Outstanding Unit Award marking on the fin. (Norman Taylor)



A flight of three T-28As practice formation flying near Maxwell AFB, Alabama. The aircraft are assigned to a primary training squadron and are finished in overall Gloss Light Gray acrylic paint, with Black anti-glare panels. (USAF)

T-28A Armament





A T-28A (50-0290) of the 112th Tactical Fighter Squadron, Ohio Air National Guard taxis out for takeoff from its home base during 1957. The Trojan is overall Light Gray with Red nose and tail markings. The pilot is wearing a '50 Mission' crash hat instead of the normal flight helmet. (Norman Taylor)

This T-28A (50-0297) of the 169th Fighter Squadron, Illinois Air National Guard was used primarily as an instrument trainer and carried the last three numbers of the aircraft's serial number on the landing gear doors in Black. The Air National Guard used the T-28A between 1956 and 1959. (D. Menard via Norman Taylor)



This T-28A (51-7768) carries the Indian insignia of the 169th Fighter Squadron, Illinois Air National Guard on the fin. The squadron was based at Peoria, sharing the field with T-33A jet trainers like the one in the background. (Norman Taylor)

AT-28A (51-7857) of the Republic of Korea Air Force (ROKAF) on the ramp at Osan Air Base. The ROKAF operated the T-28A in the primary training role. The Trojan has Natural Metal uppersurfaces over Light Gray undersurfaces. (Norman Taylor)





T-28As of the Cuban Revolutionary Air Force were parked at Miami International Airport after export of the aircraft to Cuba was denied. The Batista government had ordered ten T-28As and it is believed that only one was actually delivered before the embargo was put in place. (Norman Taylor)

The Mexican Air Force received over eighty T-28As for use in both the training and internal security roles. This T-28A carries the locally assigned serial T-26-960 on the fin in Black. The national insignia and rudder stripes are Red, White, and Green. (D. Hagedorn via Nicholas J. Waters III)



The United States provided the Nicaraguan Air Force of Generalissimo Somoza with a number of surplus T-28As. This armed T-28A (FAN 418) carried a Black lightning bolt on the fuselage side in the exhaust area and an ADF loop antenna in the rear cockpit. (Nicholas J. Waters III)

This armed T-28A of the Nicaraguan Air Force was used against Sandinista Insurgents during the late 1970s. The aircraft is overall Light Gray with Red wing tips. The rudder striping consists of a Red vertical stripe and alternating horizontal stripes of Dark Blue and White. (Nicholas J. Waters III)



T-28B

During the early 1940s the Navy began giving serious consideration to replacing the SNJ Texan in the Naval Air Training Command. Because government procurement policies had been changed, with an emphasis on consolidating aircraft purchases between the services, the Navy evaluated two USAF T-28As (137636 and 137637). After a number of evaluation flights were conducted during 1942, the Navy decided that the T-28, with certain modifications, would be an acceptable replacement for the SNJ.

To meet Navy training requirements, additional engine power was needed. As a result, the Navy asked North American to re-engine the T-28A, replacing the 800 hp R-1300 engine with a 1,425 hp Wright R-1820 engine. North American immediately began work modifying a T-28A airframe to accept the new engine under the designation T-28B.

The T-28B prototype was first flown on 6 April 1943 from North American's Columbus, Ohio production facility. The T-28B (NAA model 199) was basically a T-28A airframe mated with a 1,425 hp R-1820-9HD Wright Cyclone engine. To accommodate the larger engine, it was necessary to redesign the engine cowling. The modified cowling was deeper, more rounded, and the oil cooler intake on the port side of the cowling was relocated further back on the cowling. The number of exhaust stacks on each side of the fuselage was increased from two to three.

To absorb the additional power of the R-1820 engine, the two blade Aermacchi propeller was replaced with a 10 foot 1 inch three blade Hamilton Standard propeller. The underfuselage speed brake, which had been deleted on the T-28A, was reinstated on the T-28B. To satisfy Navy requirements, a smaller nose wheel was installed, although a few B models were fitted with the larger nose wheel used on the T-28A to meet local base requirements.

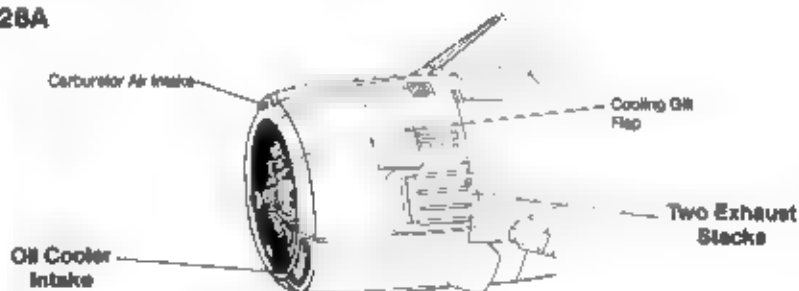
A US Navy T-28B (BuNo 137651) makes its official acceptance flight over the Pacific during 1944. Initially T-28Bs were delivered from the factory in the Navy trainer scheme of overall Gloss Orange-Yellow, with Black anti-glare panel and Medium Green exhaust areas. (USN)



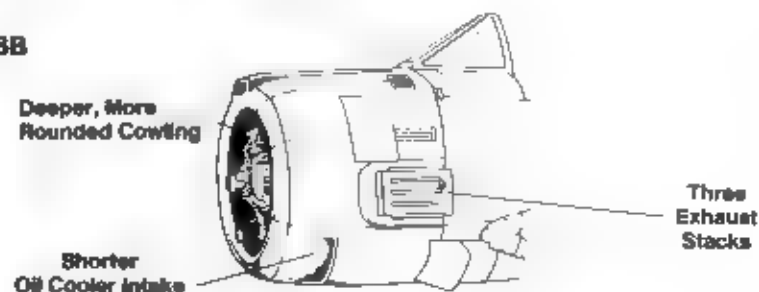
The T-28B differed in several ways from the T-28A. The aircraft had a larger, more powerful engine, three blade propeller, underfuselage speed brake, and smaller nose wheel. This T-28B (BuNo 137651) demonstrates the Trojan's slow flight characteristics, with the speed brake deployed and the landing gear down. (USN)

Cowling Development

T-28A



T-28B



The T-28B had a wing span of 40 feet 7 inches and an overall length of 32 feet 11 inches (the six inch increase came from the dome on the Hamilton-Standard propeller). Two different Wright Cyclone engines were installed in the T-28B during production, either a R-1820-86A or a R-1820-9HD, both being 1,425 hp nine cylinder air cooled radial engines.

The heavier engine brought empty weight of the T-28B up to 6,410 pounds and maximum takeoff weight was increased to 8,038 pounds, some 1,700 pounds heavier than the T-28A. The additional power also gave the T-28B better performance, with maximum speed being increased to 346 mph and service ceiling was increased some fifty percent to 37,000 feet.

The U.S. Navy took delivery of 489 T-28Bs between 1954 and 1955, utilizing them mainly in the training role, although a number of aircraft were also used by utility and composite squadrons. The Navy used the T-28B as a replacement for the SNJ in both the primary and basic training roles, assigning the Trojan to squadrons at Pensacola, Florida and Meridian, Mississippi. At the height of the Trojan's career within the Naval Air Training Command, there were nine squadrons at Pensacola and two at Meridian.

When the Navy began taking deliveries of the T-28B, the aircraft were painted in the 1954 standard Navy trainer color scheme of overall Gloss Orange-Yellow. This was later changed on 27 December 1961 to overall Gloss White with International Orange high visibility markings to conform to the Mil-C-18263 (Wep) specification that covered trainer aircraft in the Naval Aviation inventory.

Like the earlier T-28A, the T-28B could be equipped with the same underwing gun pods or bomb racks capable of carrying up to 500 pounds of bombs, rockets, or flares. Additionally, target towing equipment, smoke generators, and other loads could be carried on the underwing racks as long as the load limits were not exceeded.

The versatility of the T-28B allowed it to be used in roles other than training. The Navy Missile Test Center at Pt. Mugu, California used six T-28Bs as drone controllers.

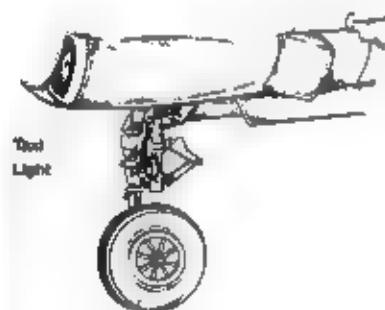
This overall Orange-Yellow T-28B (BuNo 137707) of ATU-801, the Navy's All Weather Flight School, has been fitted with a T-28A style nose wheel. The anti-glare panel, exhaust area, wing stripes, and fuselage band are in Medium Green. (W.J. Balogh Sr. via D. Menard)



This T-28B (BuNo 137718) on the ramp at NAS Anacostia, Washington D.C., was the personal aircraft of the Assistant Secretary of the Navy for Air and carried his placard, consisting of a fouled anchor and four stars, on the cowling. The open door on the underside of the fuselage is the baggage compartment access door. (G. B. Williams via W.T. Larkins)

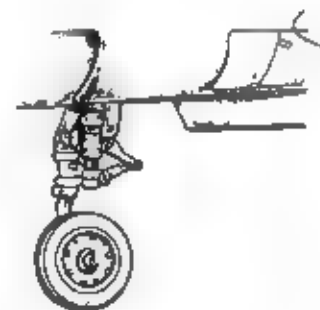
Nose Gear

T-28A

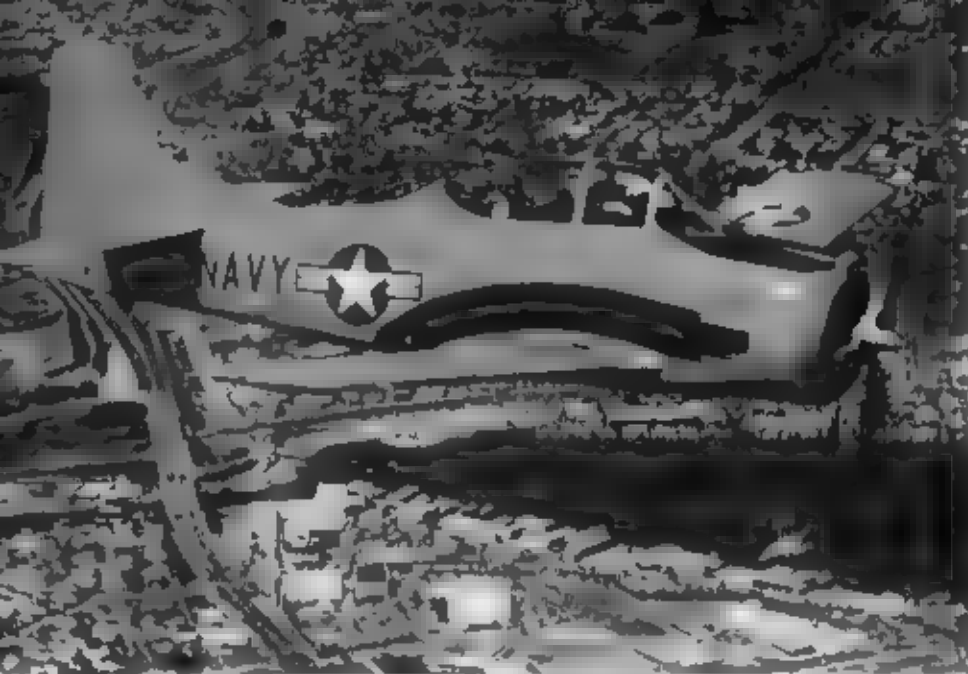


Larger Nose Wheel and Tire

T-28B



Small Nose Wheel And Tire



A new production T-28B (BuNo 137724) flies over Columbus, Ohio on an acceptance flight during 1954. The aircraft is overall Orange-Yellow with a non-standard Black anti-glare panel and exhaust area. (Norman Taylor)

The tail code '2A' indicates that this overall Orange-Yellow T-28B (BuNo 0136147) is assigned to a Fleet Readiness Squadron (FRS) at NAS Pensacola for instrument training duties. (USN)



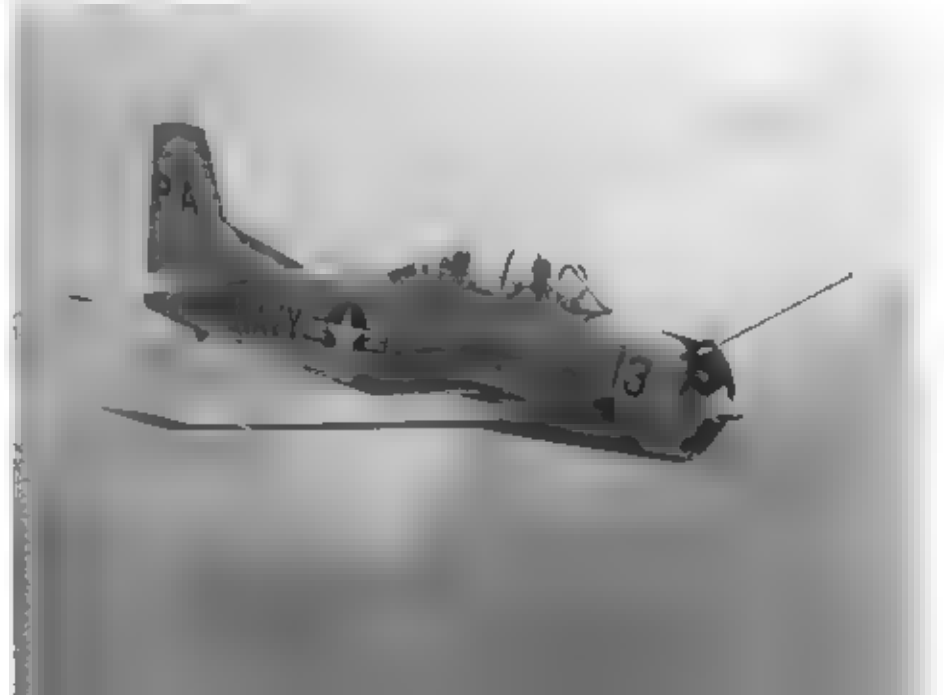
under the designation T-28BD (After the US military aircraft designation system was standardized on 1 September 1962 this designation was changed to DT 28B.) The T-28BDs were often flown with gun pods fitted to enable the Trojan to destroy any drone that went out of control and threatened a populated area.

The USAF also received a number of T-28Bs for the Air Training Command during the late 1950s and the US Army replaced their earlier T-28As with Navy surplus T-28Bs. Like the earlier T-28As these aircraft were used as photographic and chase aircraft at Fort Bragg, N.C. and Edwards AFB, California.

The Japanese Air Self Defense (JASDF) ordered a single T-28B, modified for photo reconnaissance work, from North American during 1954. The RT-28B had aerial camera equipment installed in the fuselage area normally occupied by the speed brake and luggage compartment. This aircraft, NAA serial 218-1 (USAF serial 63-0581) was delivered to Japan and entered service with the JASDF. The aircraft received the Japanese serial JA 3096 and was assigned to the 501st *Tetsusu Hikotai* (reconnaissance squadron) as an aerial survey platform. The Japanese considered license production of the T-28 by Mitsubishi, however after evaluating the Trojan against other trainers, the Japanese decided instead to produce the Beechcraft T-34 Mentor.

During 1961 a number of T-28Bs were modified with strengthened wings capable of carrying four underwing ordnance pylons in addition to the standard machine gun pods, or six underwing pylons if the gun pod was not fitted. These aircraft were delivered to the *Farm Gate Detachment*, South Vietnamese Air Force (VNAF), and Royal Thai Air Force. The T-28Bs delivered to the Vietnamese replaced the F8F Bearcats in the VNAF fighter squadrons, with the 2nd Fighter Squadron at Nha Trang becoming the first VNAF squadron to be declared operational with the modified T-28Bs.

A T-28B (BuNo 136301) of the Fleet All Weather Training Unit, Pacific (FAWTUP) flies over the Pacific on a training mission. FAWTUP operated as an instrument and all weather training unit for squadrons attached to the Pacific Fleet. (USN)





On 12 February 1959 the Navy issued MIL-C-18283B changing the color scheme for single engine trainers to overall Gloss Insignia White with Fluorescent Red Orange high visibility panels. This T-28B (BuNo 138206) of VT-6 at NAS Whiting Field, has been repainted to meet the new requirement. (USN via Norman Hill)

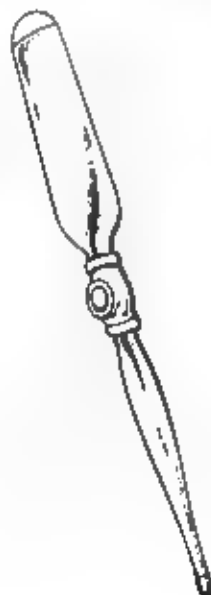


This T-28B (BuNo 138294) at Kelly AFB, Texas during 1972 was the station aircraft at Saufley Field, NAS Pensacola, Florida. The Knight's helmet on the cowl and sword on the fin are Yellow, outlined in Black. (Norman Taylor)

Propeller

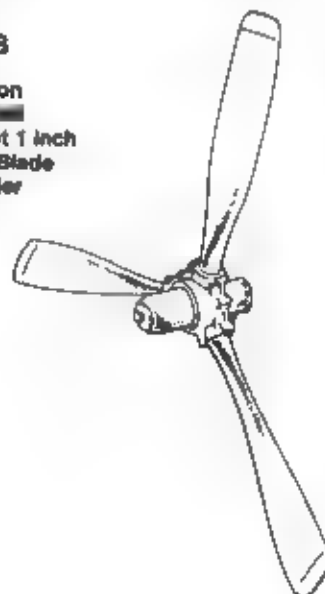
T-28A

Hamilton
Products
10 Foot Two
Blade Propeller

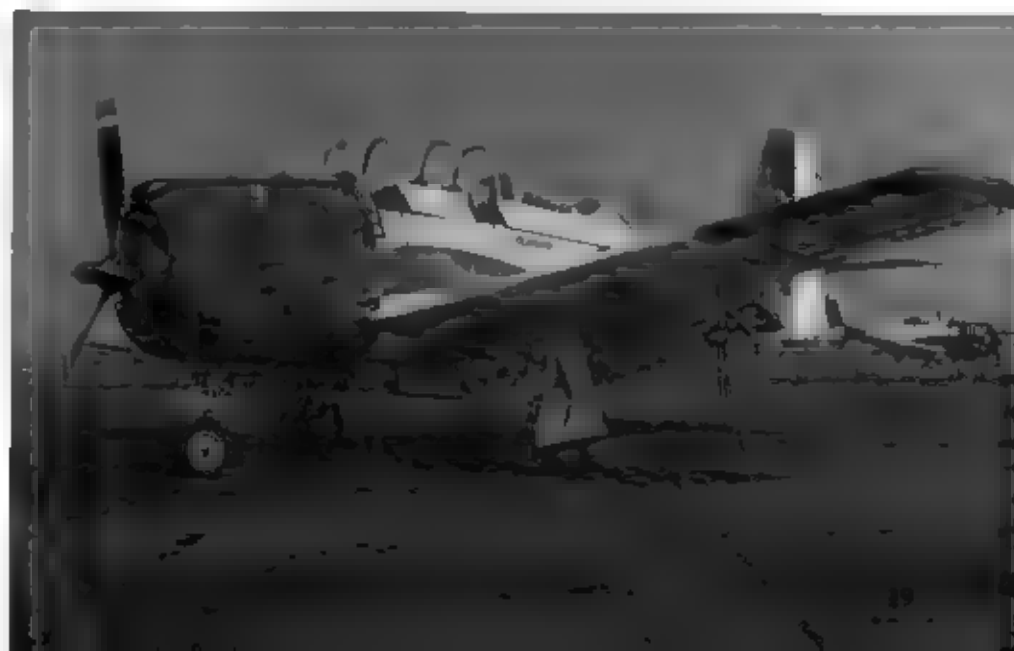


T-28B

Hamilton
10 Foot 1 inch
Three Blade
Propeller



This T-28B of Training Wing 5 (TW-5) is tied down on the ramp at Saufley Field, NAS Pensacola, Florida. T-28s on the ground usually had the flaps in the full down position. (USN via Norm Hill)





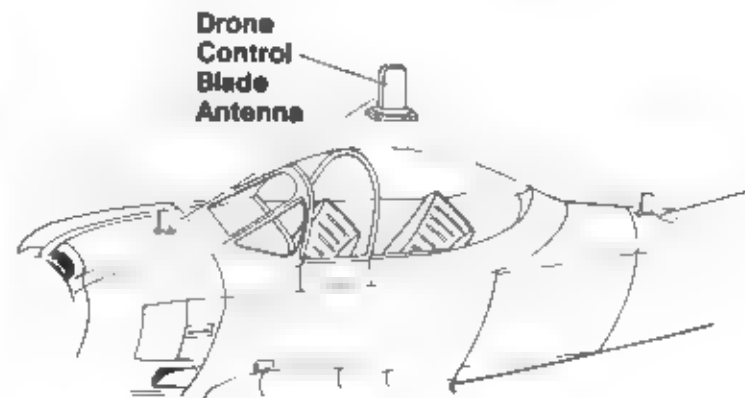
The Navy converted six T-28s to drone controllers under the designation T-28BD. This T-28BD (BuNo 138298) of the Naval Weapons Center, NAF China Lake, California, is painted in the standard drone controller scheme consisting of an Engine Gray fuselage; Orange-Yellow wings, horizontal and vertical stabilizers, with Red-Orange wing stripes and rudder. (L.B. Smalley via W.T. Larkins)

This T-28BD (BuNo 138192) was stationed at the Naval Weapons Test Center, NAF China Lake, California during May of 1958. The aircraft carries two underwing .50 caliber machine gun pods that enabled the Trojan to shot down the drone if control was lost and it threatened a populated area. (D.D. Olson via W.T. Larkins)



This drone controller T-28BD (BuNo 138219) stationed at NAS Pensacola has a modified drone controller scheme of an Engine Gray fuselage, Orange-Yellow wings; Fluorescent Red-Orange horizontal and vertical tail surfaces; with Natural Metal leading edges on all flight surfaces. (USN via Bill Johnson)

T-28BD Drone Control Antennas





This T-28B (BuNo 136129) was used by the Marines at NAS Anacostia as a hack and carries a decidedly non-standard variation of the Gloss Insignia White and Fluorescent Red-Orange color scheme. The Trojan is also fitted with a sunshade inside the upper canopy. (W.J. Balogh Sr. via D. Menard)



A T-28B (BuNo 137652) of the Naval Test Pilots School parked on the ramp at NAS Patuxent River Maryland. The insignia on the tail is a silhouette of a Douglas F4D Skyray. The aircraft is configured for towing streamers and the wire running from the front cockpit to the tail bumper controls the cable release. (Norman Taylor)

Speed Brake

T-28A

T-28B





This modified T-28B (38372) reveals the wear and tear of constant operations with heavy exhaust and gun stains on fuselage and wings. The carburetor intake, fin tip, and lightning bolt are in Dark Blue. This T-28 is unusual in that it is armed with twin .30 caliber machine gun pods instead of the normal .50 caliber gun pods. (Charles Blackman)

Weather was always a concern in Vietnam where cloud and tropical storms could suddenly obscure the ground. This T-28B (383720) flies through heavy cloud cover high over the Mekong Delta; armed with .30 caliber machine gun pods, 100 pound bombs, and fragmentation bomb clusters. (Charles Blackman)



A modified T-28B (140039) of the 2nd Fighter Squadron, Vietnamese Air Force (VNAF) on alert at Nha Trang Air Base, South Vietnam. The VNAF received large numbers of modified T-28Bs and T-28Cs during the early 1960s. (Author)

Armament

T-28B

Single Gun
Pod/or
Bomb Rack

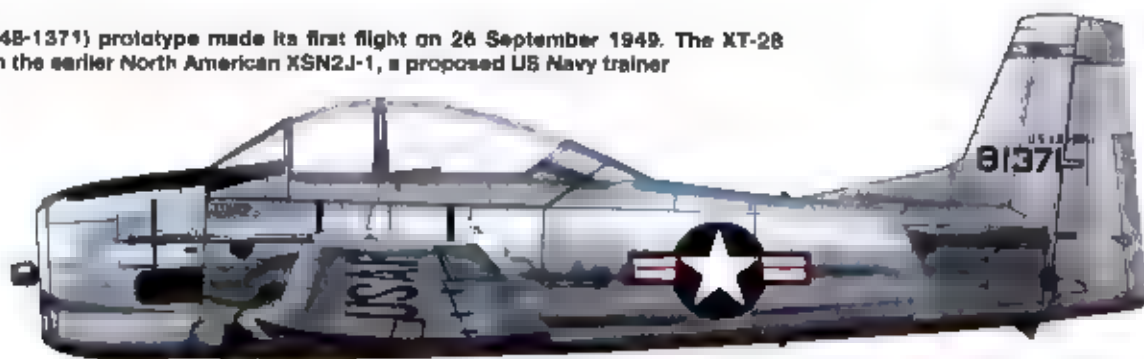


T-28B
(Modified)

Gun Pod and
Two or Three



The XT-28 (48-1371) prototype made its first flight on 26 September 1949. The XT-28 evolved from the earlier North American XSN2J-1, a proposed US Navy trainer



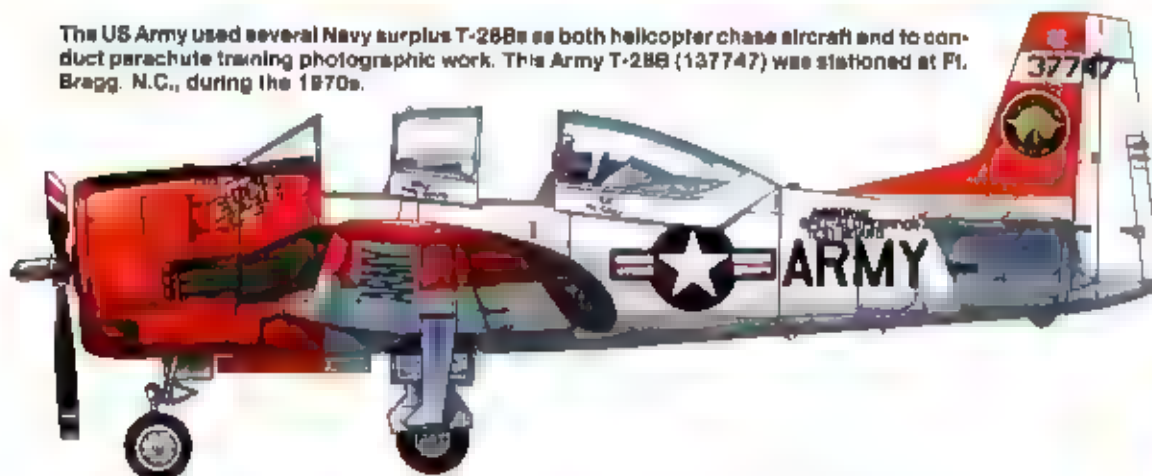
An early production T-28A of the USAF Test Pilots School at Edwards AFB, California. The Test Pilots School used the T-28 for both test programs and to train new test pilots.



This T-28B was used by the Pacific Fleet All Weather Training Unit to train student Naval Aviators in advanced instrument flying.



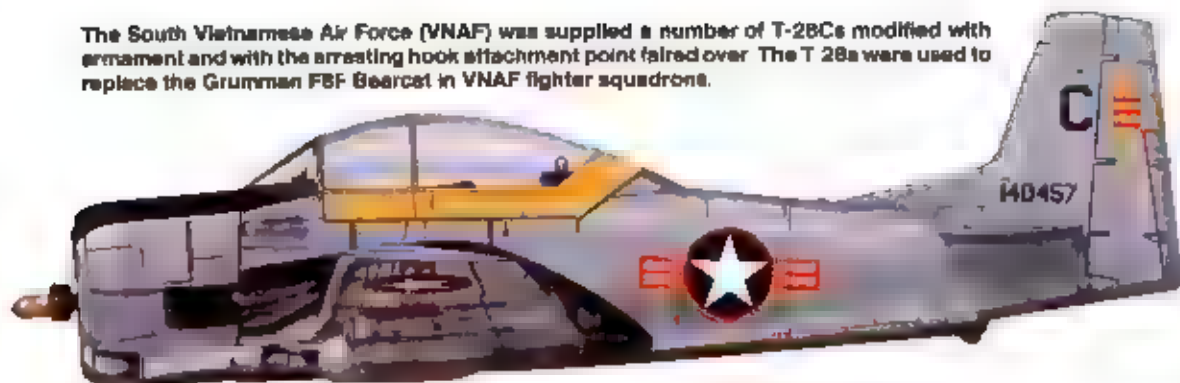
The US Army used several Navy surplus T-28Bs as both helicopter chase aircraft and to conduct parachute training photographic work. This Army T-28B (137747) was stationed at Ft. Bragg, N.C., during the 1970s.



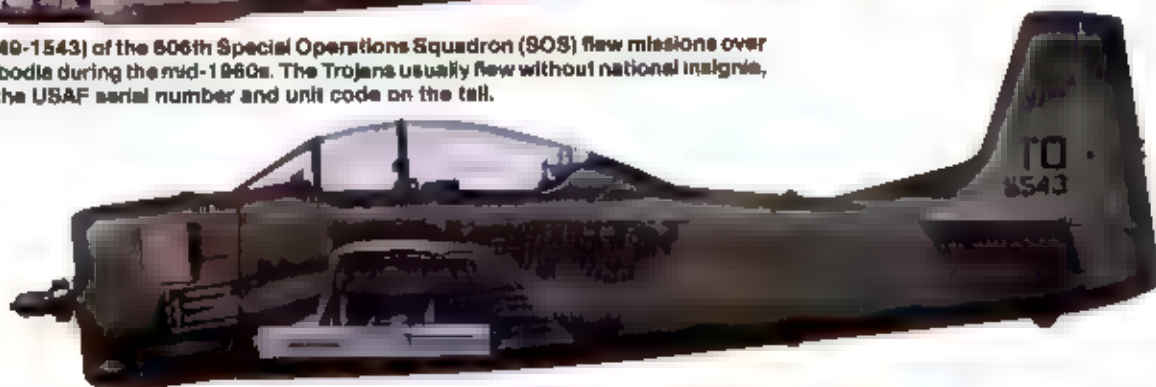
A T-28BD drone controller of Utility Squadron Three A (VU-3A) stationed at the Pacific Missile Test Center, Pt. Mugu, California.



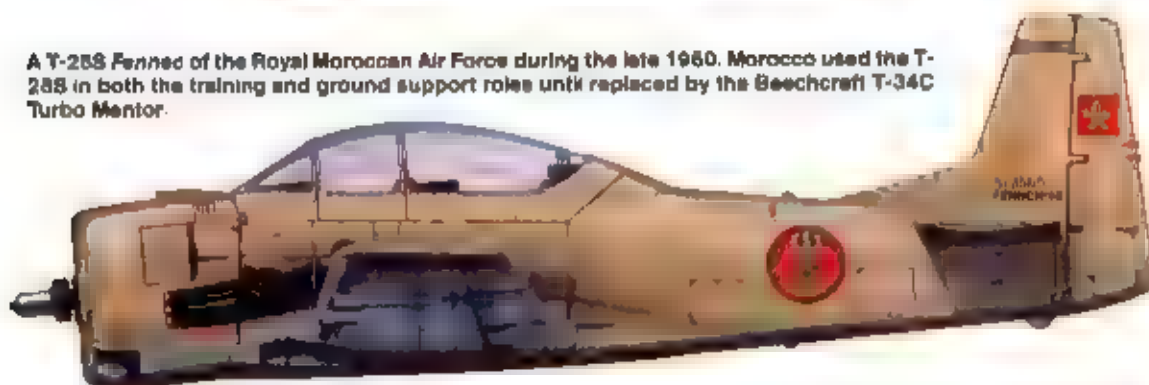
The South Vietnamese Air Force (VNAF) was supplied a number of T-28Cs modified with armament and with the arresting hook attachment point faired over. The T-28s were used to replace the Grumman F8F Bearcat in VNAF fighter squadrons.



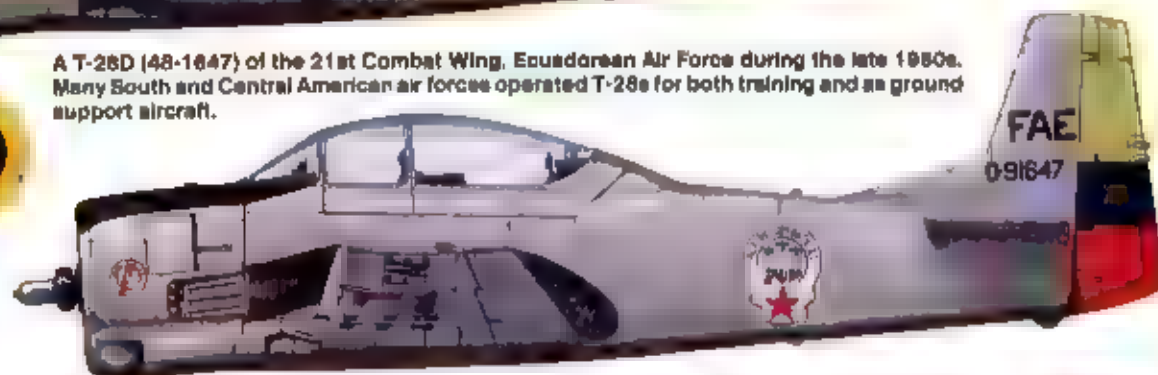
This T-28D-5 (49-1543) of the 506th Special Operations Squadron (SOS) flew missions over Laos and Cambodia during the mid-1960s. The Trojans usually flew without national insignia, carrying only the USAF serial number and unit code on the tail.



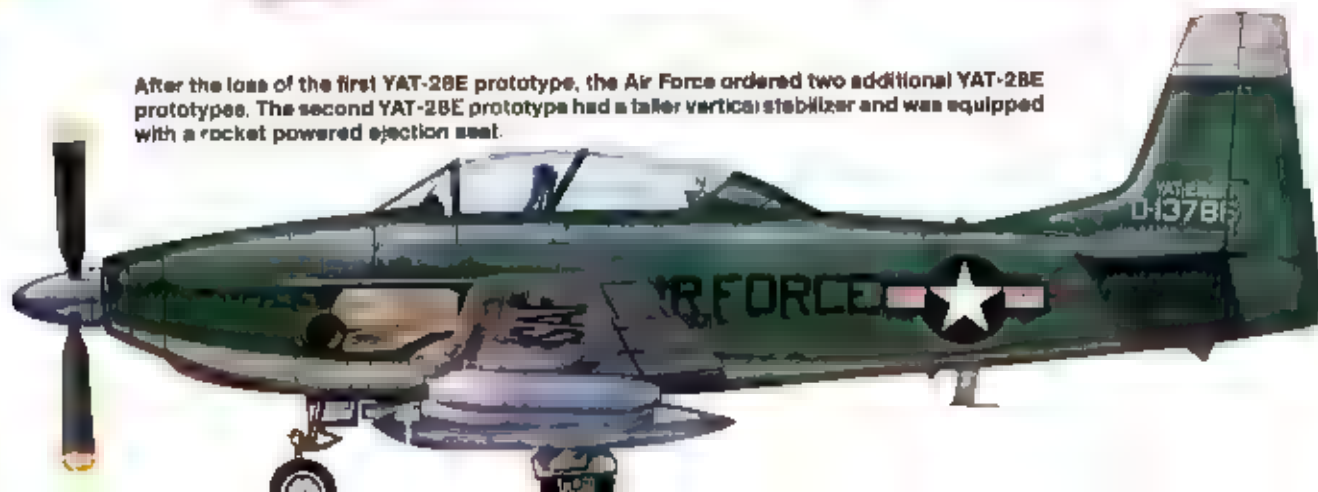
A T-28S Fenned of the Royal Moroccan Air Force during the late 1960. Morocco used the T-28S in both the training and ground support roles until replaced by the Beechcraft T-34C Turbo Mentor.



A T-28D (48-1647) of the 21st Combat Wing, Ecuadorian Air Force during the late 1960s. Many South and Central American air forces operated T-28s for both training and as ground support aircraft.



After the loss of the first YAT-28E prototype, the Air Force ordered two additional YAT-28E prototypes. The second YAT-28E prototype had a taller vertical stabilizer and was equipped with a rocket powered ejection seat.



T-28C

Pleased with the performance of the T-28B, the Navy decided that the Trojan would be even more useful if it could be modified for shipboard operations. If the T-28B could be modified with the addition of a tailhook, it would allow the Navy to consolidate the training mission around a single basic aircraft type — the T-28.

North American modified a T-28B airframe to serve as the prototype T-28C (NAA model 252) with the addition of a tail hook for carrier operations and a slightly redesigned and strengthened rear fuselage to absorb the stress of arrested landings. The first flight of the carrier capable Trojan was on 19 September 1955 and, after a short flight test program, acceptance by the Navy quickly followed.

The tail hook installation required that the lower rear fuselage and rudder be somewhat shortened, giving the aircraft a notched appearance. This redesign was necessary to allow room for the tail hook to be retracted flush against the underside of the fuselage. With the tail hook installed, the fuselage length was increased by 1 foot 5 inches, bringing overall length to 34 feet 4 inches. Wingspan and height remained the same as the T-28B, at 40 feet 1 inch and 12 feet 8 inches respectively.

The tail hook, hook retraction mechanism, and structural strengthening increased the empty weight of the T-28C to 6,424 pounds and maximum weight rose to 8,500 pounds. This increase in weight had an adverse effect on performance. Top speed of the T-28C was reduced to 343 mph, service ceiling was lowered to 35,500 feet (1,500 feet less than the T-28B) and rate of climb fell off to 3,500 feet per minute (some 300 feet per minute less than the T-28B). The range of the T-28C was also reduced by 200 miles, to 860 miles. The close proximity of the Navy's Florida training bases and the operating area of the Navy's training carrier in the Gulf of Mexico, however, made the reduced range acceptable.

T-28Cs, like the earlier T-28A and B, were equipped to handle underwing gun pods or bomb racks. When gun pods or underwing stores were carried, a pair of cowlings strakes were installed on the cowling just above the exhaust stacks. These strakes were designed to aid in stall and spin recovery by providing lift to the front of the aircraft. Later, a number of T-28Cs were modified with strengthened wings and additional underwing armament pylons for use in the fighter-bomber role. These modifications were the same as those which had been performed on the earlier T-28B. These modified T-28Cs were delivered to the South Vietnamese Air Force (VNAF) during the early 1960s, where they served both in the training and ground attack roles.

To stand the stress of carrier landings, the gyro travel of the main and nose landing gear struts was increased. This increase helped the landing gear absorb the shock of both arrested landings and catapult launches. To provide greater ground clearance for the propeller during arrested landings, a 9 foot 4 inch diameter Hamilton-Standard propeller was installed replacing the 10 foot one inch propeller of the T-28B.

A total of 299 T-28Cs were produced by North American between 1955 and 1957 for the Navy. Additionally, North American converted seventy-two T-28As to T-28C standards (along with an unspecified number of T-28Bs) during the 1960s to make good Navy attrition. This conversion work was handled at the North American Columbus, Ohio facility.

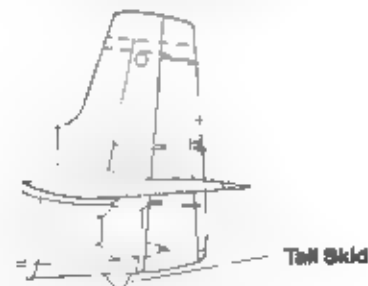
With the addition of the T-28C the Navy now had a completely rounded out training program centered around the T-28. The student Naval Aviator trained in the T-28B for primary basic and instrument instruction, while the T-28C was used for advanced and carrier qualification training. To become carrier qualified a student Naval Aviator needed to complete four arrested landings, two touch-and-go carrier landings, and four catapult launches. These were the final certification after numerous field carrier practice landings conducted on airfields ashore marked with a simulated carrier deck.



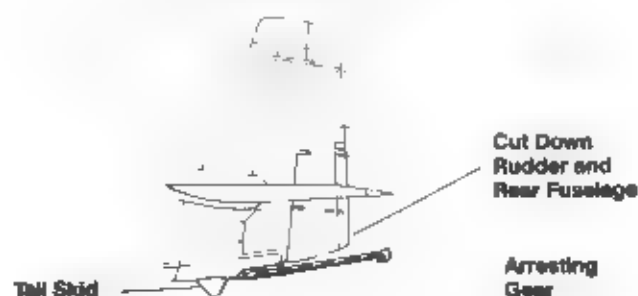
This early production T-28C (BuNo 145266) of VT-4 at NAS Pensacola during 1956 carries the overall Orange-Yellow scheme with a Medium Green anti-glare panel. The flaps are in Medium Green on both the upper and lower surfaces while the tail hook has alternating Black and White stripes. (USN)

Tail Development

T-28B



T-28C





An overall Orange-Yellow T-28C (BuNo 140055) of VT-5 taxis out of the landing area aboard USS ANTIETAM (CVS-36) after a successful arrested landing. USS ANTIETAM served as the Navy's training carrier in the Gulf of Mexico until replaced by USS LEXINGTON (AVT-16) during 1963. (USN)

A T-28C Trojan takes a wave-off during carrier landing practice and goes around. The vapor trails coming back off the propeller are a common sight at sea because of the high humidity. The twelve round holes on the fuselage underside are the speed brakes. (Aviation Photo Exchange)



T-28Cs have seen extensive service aboard the Navy's training carriers steaming in the Gulf of Mexico. The Navy's present training carrier, USS LEXINGTON (AVT-16), took over from the USS ANTIETAM (CVS-36) on 29 December 1962. The LEXINGTON recently underwent a through overhaul (1986-87) and is not scheduled for replacement until the early 1990s. Current Navy planning is for the USS KITTY HAWK (CV-63) to move to Pensacola and relieve the LEXINGTON during the early 1990s.

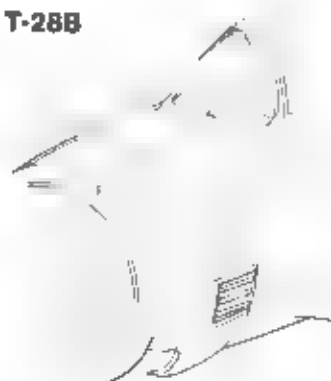
The T-28C was used by four training squadrons in the Pensacola, Florida area including, VT-2 (tail code 2G) and VT-3 (tail code 2W) located at NAS Whiting Field, VT-5 (tail code 2S) at NAS Saufley Field, and VT-6 (tail code 2P) at NAS Whiting Field. VA-122 (tail code NJ) operated T-28Cs as instrument trainers for the Pacific Fleet, while VA-42 (tail code AD) performed the same function for the Atlantic Fleet. Both units were disestablished during 1970 and their aircraft passed to other Navy training squadrons.

COMMODORE Marty Morgen, Commanding Officer of Training Wing 6 (VT-6), based at Pensacola, Florida said it all when he stated: "When the US Navy stopped using the T-28C they took away the one aircraft that was the most fun to fly of any that I've ever flown."

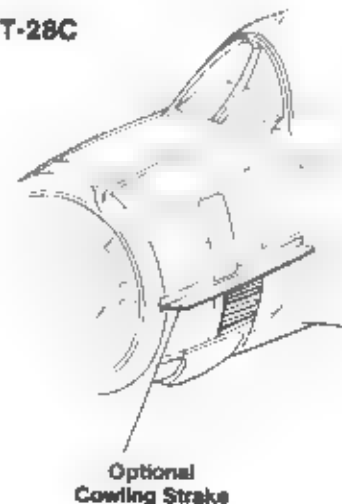
T-28Cs served the US Navy from 1955 until 1984. During the late 1970s the Navy began phasing out the T-28 training program in favor of a program built around the turboprop Beechcraft T-34C and the North American T-2 Buckeye jet trainer. By late 1983 only one squadron of T-28Cs remained at Corpus Christi, Texas and the last of these aircraft were retired from active Naval service during the Spring of 1984.

Cowling

T-28B



T-28C

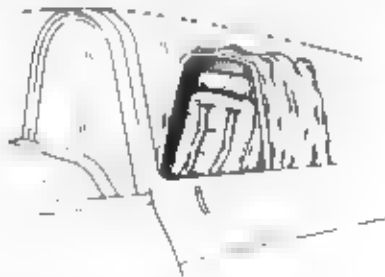




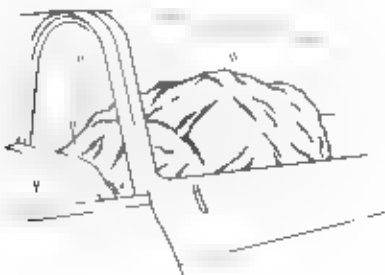
To let students get the feel of the aircraft in the carrier landing configuration before actually making a landing, instructors had them fly simulated landing approaches at a safe altitude. This T-28C (BuNo 140057) of VT-5 with the landing gear, tail hook, speed brake, and flaps down is making just such a practice approach. (USN)

Rear Cockpit Instrument Flying Hood

Open Position



Closed Position



A series of 'touch and go' landings are part of the carrier qualification training for Naval Aviators. This T-28C (BuNo 140474) of VT 5 is being flown by a Midshipman from the U.S. Naval Academy during summer orientation flights aboard USS LEXINGTON. (USN)

This T-28C (BuNo 148273) of VA-122 is fitted with the cowling stripes normally carried when undergoing armament was used. The aircraft has Light Gull Gray upper surfaces over Gloss Insignia White undersurfaces, with the fin tip and all moveable flying surfaces also in White. The insignia on the fin is a Gray elongated arrow on a Yellow background outlined in Black. (Norman Taylor)





Reminiscent of a scene from a Second World War movie, T-28Cs crowd the aft flight deck of USS LEXINGTON while conducting carrier qualifications during 1961. The Trojan was normally flown off the deck rather than being launched by the ship's catapult, although the aircraft was capable of being catapult launched. (USN via John Elliott)

This modified T-28C (140457) was the personal aircraft of the 516th Fighter Squadron commander at Nha Trang Air Base, South Vietnam. The aircraft carries the cowling stripes fitted to T-28Cs whenever armament was installed. The aircraft has Light Gray upper surfaces, White undersurfaces, and a Yellow canopy frame. The VNAF operated the T-28 until it was replaced by the A-1 Skyraider. (Author)



A Marine T-28C (BuNo 140053) assigned as the station 'hack' at Marine Corps Air Station Quantico, Virginia. The Marines operated only a few T-28Cs mainly as hacks and proficiency trainers for staff level officers. (D. Colbert Via D. Menard)

A pair of VNAF modified T-28C's (140457 and 140558) of the 516th Fighter Squadron fly over the mountains near their home base of Nha Trang, South Vietnam. VNAF T-28 markings differed from those applied to Farm Gate T-28s, with VNAF Trojans carrying a Vietnamese fin flash on the rudder. (Norman Taylor)



T-28D

During the early 1960s the USAF Tactical Air Command (TAC) was directed to develop a counter-insurgency force tailored to train friendly air forces to fight in limited wars against guerrilla forces. As a result of this directive, TAC began evaluating existing aircraft types to find an available and inexpensive aircraft that could be modified for use as a COIN (Counter-Insurgency) aircraft.

During this same time period a large number of surplus T-28As were being held in storage at Davis-Monthan AFB. After evaluating a number of different aircraft, TAC selected the T-28A, with certain modifications, as their COIN aircraft. Since the aircraft were to be provided to friendly foreign governments with limited resources, it was felt that the modified T-28 would make an ideal aircraft to both train and equip small air forces with a relatively simple to fly and maintain fighter-bomber.

This decision resulted in the T-28D (NAA model 260), which was basically a rebuilt T-28A with a more powerful engine and strengthened wings. The T-28D was powered by a 1,425 hp Wright Cyclone R-1820-56S nine cylinder air cooled radial engine, driving a three blade Hamilton Standard propeller. This engine was similar to the power plant used in the T-28B and the same cowling modifications that had been incorporated on the T-28B were also fitted to the T-28D.

To allow the T-28D to perform in its intended role of tactical fighter-bomber, the wings were strengthened to enable the aircraft to carry a variety of underwing stores up to 4,000 pounds. As with earlier T-28 models, either a twin .30 caliber machine gun pod or single .50 caliber machine gun pod could be flush mounted on the wing undersurface outboard of the landing gear. The T-28D normally was fitted with one of two different styles of self-contained .50 caliber machine guns pods. One pod was configured with the gun and 100 rounds of ammunition, while the second style was configured with the gun and 500 rounds of ammunition; the 500 round gun pod being much larger and deeper than the 100 round gun pod.

Beginning with the T-28D-5 variant, the wings were further modified with ammunition bays to internally house the ammunition for the underwing .50 caliber machine guns. The M3 .50 caliber machine guns were now housed in an underwing gondola which was smaller, shallower, and more streamlined than the earlier self-contained gun pods.

In addition to the gun pods, the strengthened wing of the T-28D allowed the aircraft to be configured with four (T-28D) or six (T-28D-5) under wing pylons capable of carrying a variety of underwing stores including bombs, rocket pods, flares, napalm tanks, and cluster munitions. A Mk-20 mod 4 reflector gunsight was installed in the front cockpit, along with the associated armament control panel. To increase the range and/or loiter time of the T-28D, the internal fuel capacity of 177 gallons was augmented by plumbing the inboard wing pylons to accept external fuel tanks. Because the T-28D was intended to operate in the close in, low altitude environment, armored head rests and cockpit armor was installed to give the crew added protection, especially during low level pull-outs after a bomb or strafing run.

These modifications brought empty weight up to 6,251 pounds, gross weight to 8,118 pounds, and maximum takeoff weight to 8,495 pounds. Top speed for the T-28D was 345 mph at 18,000 feet, rate of climb was 1,780 feet per minute, and maximum range was 1,184 miles on internal fuel.

Between early 1961 to late 1969, North American received a total of thirteen production contracts covering conversion of a total of 321 T-28As to the T-28D configuration. Not all T-28Ds were rebuilt T-28As; a number were remanufactured T-28Bs and a few were rebuilt from the T-28C with the arrestor hook removed and faired over. In addition, seventy-two T-28As were converted by Fairchild Aircraft to T-28D standard and given the designation AT-28D. A number of these aircraft were equipped with ejection seats.



The majority of T-28Ds were remanufactured T-28As. This T-28D (52-12001) was rebuilt from a T-28A at North American's Inglewood, California plant. The aircraft is overall Natural Metal and carries two 100 round .50 caliber machine gun pods and four underwing pylons. (Norman Taylor)

These T-28Ds at the North American production facility in Columbus, Ohio during 1962 were scheduled for delivery to the South Vietnamese Air Force. The aircraft have Light Gray upper surfaces over Magnolia White undersurfaces, with Black anti-glare panels and exhaust areas. (NAA Via N. Taylor)



Combat

The first T-28Ds to see action were actually converted T-28Bs assigned to the 4400 Combat Crew Training Squadron based at Eglin AFB, Florida. In October of 1961, President Kennedy authorized deployment of a detachment from the 4400 CCTS to Vietnam under the code name *Farm Gate*. The detachment was to train South Vietnamese pilots in the T-28 and was authorized to fly combat missions, providing there was a South Vietnamese national in the rear cockpit. During July of 1963 the detachment was redesignated the 1st Air Commando Squadron (Composite) and additional T-28Ds were received. The original converted T-28Bs assigned to the squadron had been in combat since 1961 and by February of 1964 were beginning to show signs of serious structural problems. The heavy ordnance loads, together with the hot/high conditions in Vietnam, and rough pierced steel plank (PSP) taxiways and runways, had contributed to a wing overstress condition. This overstress resulted in the loss of several T-28s and their pilots. As a result, nine newer T-28Ds were borrowed from the South Vietnamese Air Force (VNAF) to keep the squadron operational while the unit searched for a replacement aircraft. These T-28Ds continued in service with the 1st ACS until finally replaced by A-1 Skyraiders in May of 1964, at which time the surviving Trojans were returned to the VNAF.

The VNAF's 2nd Fighter Squadron was initially formed with a mix of modified T-28Bs and T-28Cs during late 1961. By the Spring of 1962 some twenty-five VNAF pilots had completed training in the T-28 and were declared combat ready and a number of newer T-28Ds had been received. The VNAF found the T-28D to be well suited to their needs. The short field performance and ease of maintenance made the Trojan ideally suited for forward basing in small detachments, allowing a rapid response to enemy activities.

A number of VNAF T-28Ds were modified, under the designation RT-28D to carry a special aerial reconnaissance camera pod under the fuselage in the area normally used for the speed brake and baggage compartment. The reconnaissance pod could be configured to carry a number of different camera combinations including, vertical, forward oblique, and left oblique. When the pod was installed, all armament was removed. The RT-28Ds were assigned to the 716th Composite Reconnaissance Squadron where they served alongside RC-45s and RC-47s.

The T-28D served with the VNAF until the increasing anti-aircraft capabilities of the Viet Cong made it necessary to replace the Trojan with a more powerful and faster fighter-bomber. During early 1964 the decision was made to standardize VNAF fighter squadrons on the Douglas A-1 Skyraider and the T-28s were withdrawn from service.

After its withdrawal from combat in Vietnam during 1964, T-28Ds continued to serve with the USAF in Thailand until 1972. T-28Ds were assigned to the 606th SOS (Special Operations Squadron), 96th SOW (Special Operations Wing) in the fighter-bomber role flying missions over Laos and Cambodia. T-28Ds were also supplied to the air forces of Thailand, Cambodia, and Laos and a number of these aircraft remain in service today (although it is doubtful that many Cambodian or Laotian T-28s are operational due to a lack of spare parts). The sole air-to-air combat victory scored by a T-28D is credited to a Royal Khmer Aviation (Cambodian) T-28D which shot down a USAF O-1E Bird Dog FAC aircraft that allegedly strayed over the Cambodian border. The crew of the Bird Dog, a USAF pilot and a South Vietnamese observer, were both killed.

In addition to South East Asian air forces a number of other nations operated the T-28D. A number of Fairchild AT-28Ds were supplied to the Philippine Air Force to equip the 16th and 25th Attack Squadrons of the 15th Attack Wing. The AT-28D are based at Sangley Point Air Base, from which they deploy in small detachments to forward bases for combat operations against Libyan backed Communist insurgent groups. A number of these aircraft have been given an overall Black camouflage scheme, devoid of national markings, for night operations over Communist strongholds.



This *Farm Gate* T-28D (38370) over the Central Highlands near Pleiku during late 1962 is armed with the larger 500 round .50 caliber machine gun pods, seven shot rocket pods, and fragmentation bomb clusters on the outboard pylons. (C. Yarbrough)

Gun Pods

T-28D



100 Round .50 Caliber Machine Gun Pod



500 Round .50 Caliber Machine Gun Pod



Twin .30 Caliber Machine Gun Pod

T-28D-5



.50 Caliber Underwing Gondola



Wing Ammunition Bay

In Africa, the Congo (later renamed Zaire) was torn by fighting between Communist supplied insurgents, known as *Simbas* (Lions) and the Western backed central government. To support the government, the United States supplied at least sixteen T-28Ds and a number of Douglas B-26Ks to the Congolese Air Force. These aircraft were flown by Cuban exile mercenary pilots, recruited and paid by the Central Intelligence Agency. The T-28Ds proved highly effective in the Congo, strafing enemy troops, supply convoys, and flying air cover for the USAF C-130s that were used during the international rescue mission at Stanleyville. After the insurgency was defeated during the fall of 1965, the aircraft were left in the Congo where they were later absorbed into the Zaire Air Force. Other T-28s were supplied to the Ethiopian Air Force where they saw action during anti-guerrilla operations against Eritrean nationalists.

In Latin America, five armed T-28As and two T-28Ds served with the Honduran Air Force (FAH) and saw limited combat during the Summer of 1969 'Soccer War' between Honduras and El Salvador. The first aerial incident of the war occurred when the two FAH T-28Ds, flying a combat air patrol, forced down a civil registered Salvadoran Piper PA-28 Cherokee, reportedly on a reconnaissance flight over Honduran territory. As the war heated up, the T-28s were assigned to provide combat air patrol over FAH bases whenever FAH F4U Corsairs were being serviced or rearmed for combat missions over the border. The T-28Ds proved to be ill-suited for this mission, a fact that became painfully apparent when, on 15 July 1969, an F-51D Mustang and an FG-1 Corsair of the Salvadoran Air Force successfully eluded the slower T-28Ds and attacked Toncontin airfield. Other Latin air forces that operated the T-28D include Bolivia (3), Dominican Republic (8), and Ecuador (8).

The T-28D proved itself in combat to be an excellent gun and bomb platform, and was able to withstand a surprising amount of battle damage. The Trojan was well liked equally by its pilots and hard working ground crews. As in all previous T-28s, maintenance crews appreciated the fact that the T-28 was rugged, easy to maintain, and required very few maintenance hours per flight hour.

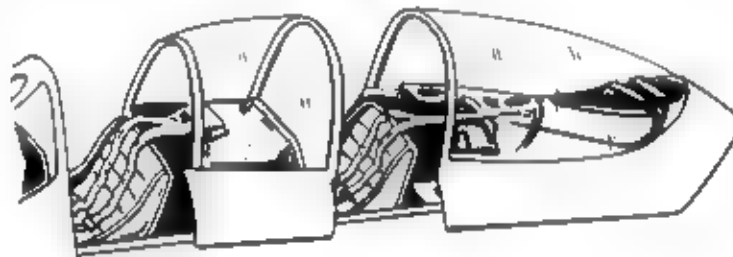
Farm Gate T-28s operated over Vietnam in Vietnamese Air Force (VNAF) markings. One of the primary missions for Farm Gate aircraft was escorting trains to warn of any Viet Cong ambush sites. The rules of engagement required that a South Vietnamese national fly in the rear cockpit on all missions. (USAF via Hugh Morgan)



Accompanied by the crew chief, the pilot of this T-28D-5 of the 608th SCS conducts a pre-flight inspection of the Trojan prior to another mission. The T-28 is armed with SUU-14A bomb/rocket dispensers, Mk 81 250 pound GP bombs, and LAU-32/A 2.75 inch rocket pods. (N. Crocker via N. Taylor)

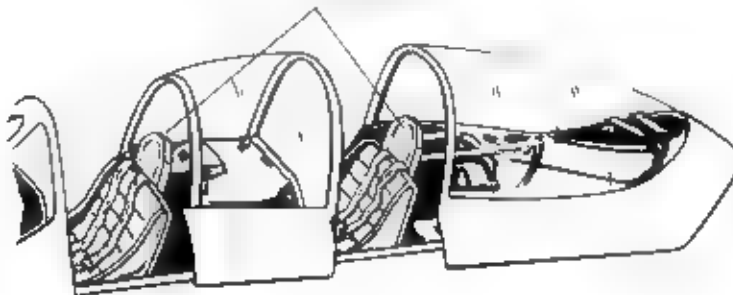
Seats

T-28C



Armored Headrests and Seatbacks

T-28D

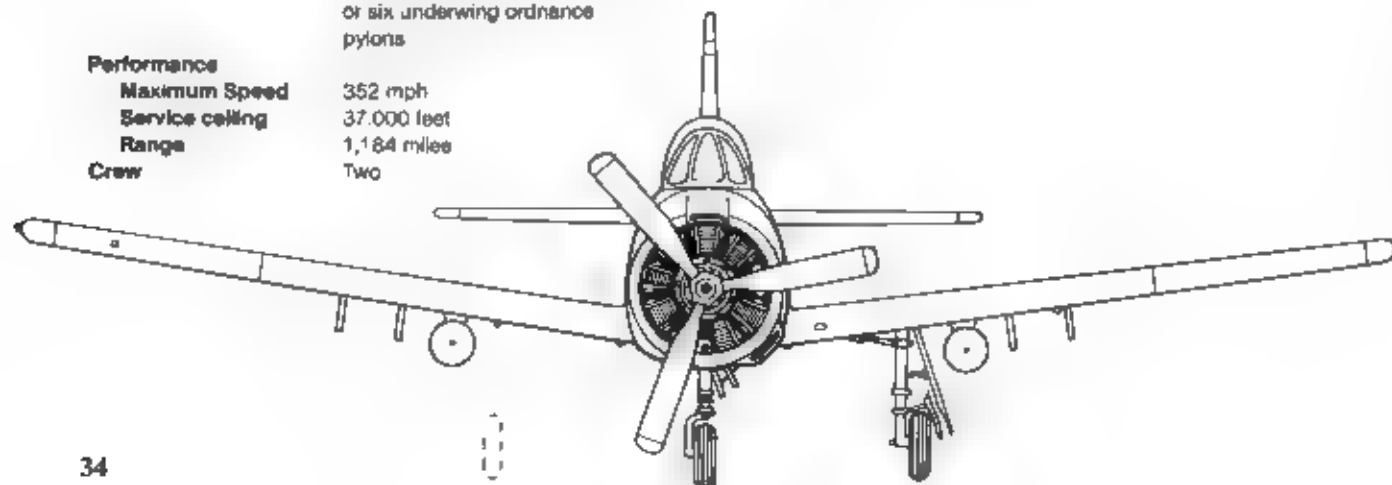
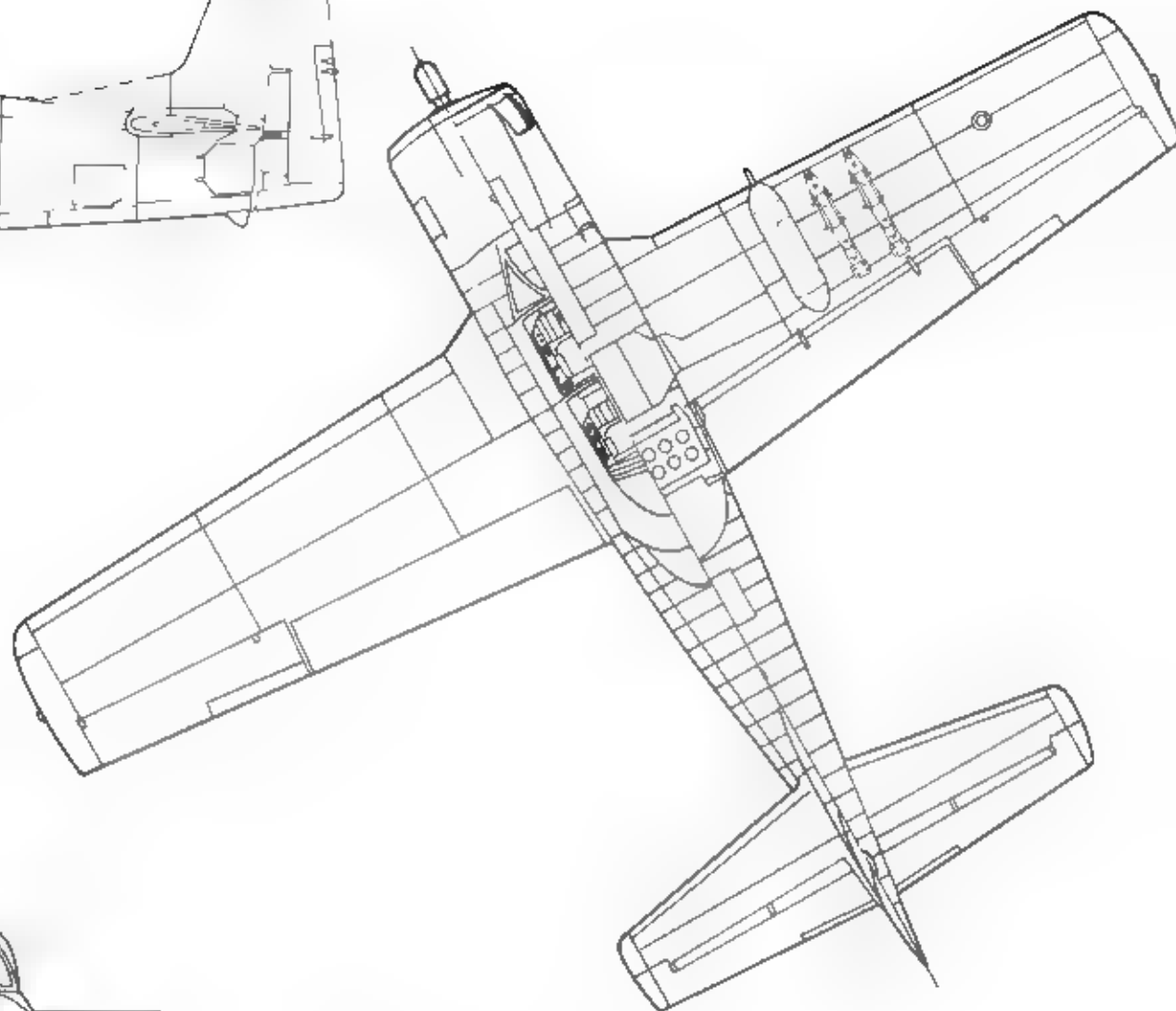




Specifications

North American T-28D Trojan

Wingspan	40 feet 1 inch
Length	32 feet 10 inches
Height	12 feet 8 inches
Empty Weight	8,251 pounds
Maximum Weight	8,495 pounds
Powerplant	One 1,425 hp R-1820-56A Wright Cyclone air cooled radial engine
Armament	Two gun pods and either four or six underwing ordnance pylons
Performance	
Maximum Speed	352 mph
Service ceiling	37,000 feet
Range	1,184 miles
Crew	Two





This T-28D-5 (38384) of the 4400th Combat Crew Training Squadron (CCTS) was put on display at Eglin AFB, Florida, during 1981. The armament includes .50 caliber machine gun pods, ammunition, napalm bombs and 2.75 inch rocket pods. Within a short period this same aircraft deployed to Vietnam with the *Farm Gate* detachment. (USAF Via Rod Bankston)

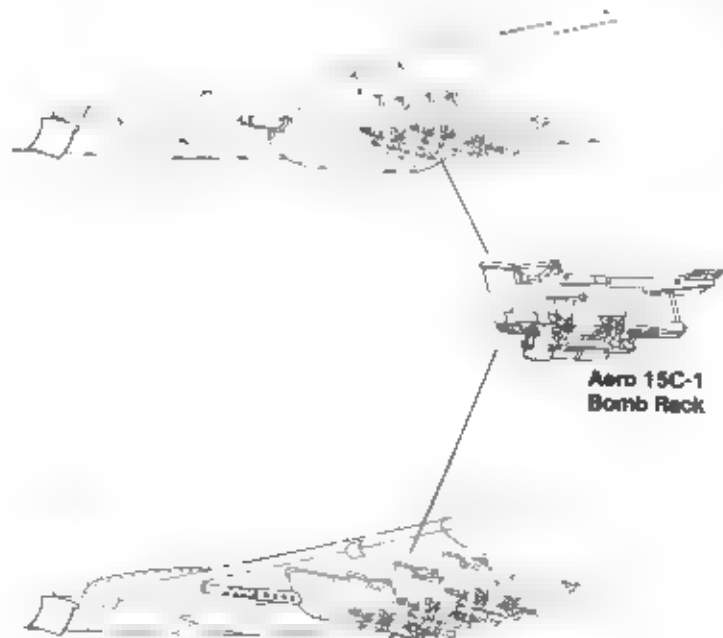


Felchid Aircraft rebuilt seventy-two T-28As to T-28D-5 standards. A number of these aircraft were also fitted with a rocket propelled ejection seat designed especially for the T-28. The seat ejected through the canopy, and aircraft with the seats had a modified canopy with detonator chord imbedded in the Plexiglass. (Norman Taylor)

Underwing Armament

T-28D

Gun Pod
and Four
Aero 15C-1
Bomb Racks



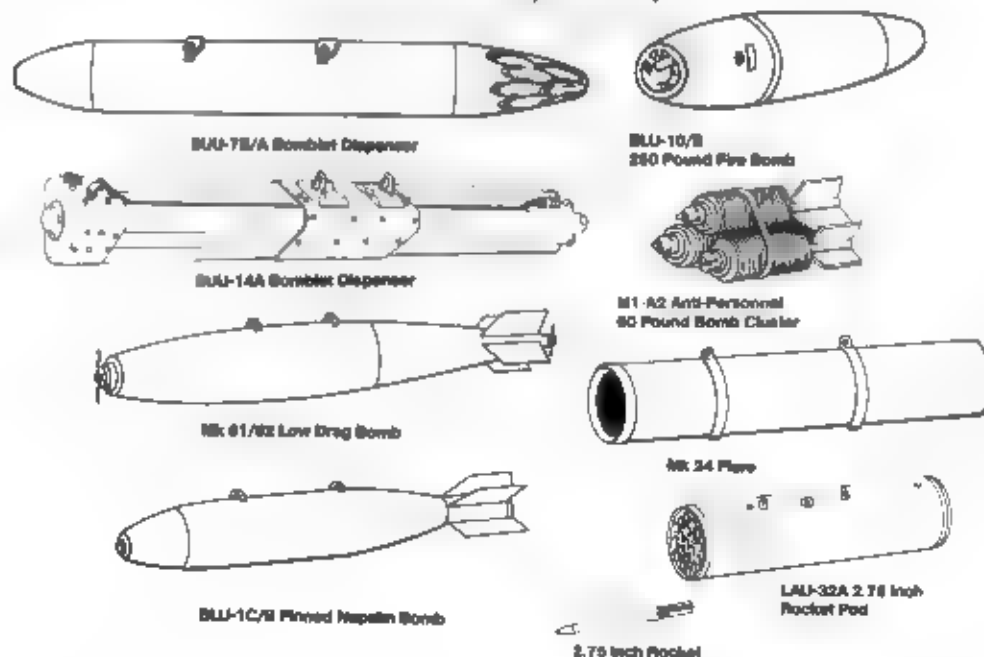
Aero 15C-1
Bomb Rack

T-28D-5

.50 Caliber
Underwing
Gondola and
Six Aero 15C-1
Bomb Racks



Aero 15C-1 Compatible Weapons





This T-28D-5 (49-1543) of the 606th Special Operations Squadron, based at Nakhon Phanom (NKP) Thailand, carries three tone Green upper surface camouflage over Black undersurfaces. All national markings have also been removed.

The air environment over Laos was extremely hazardous since the North Vietnamese Army had moved in large numbers of anti-aircraft weapons to protect the Ho Chi Minh Trail. USAF aircraft operating over Laos did not carry national insignia; the only markings applied were the unit tail code and aircraft serial number. (N. Crocker via N. Taylor)



The armorer has just removed the armament safety pins from the weapons on this T-28D-5 (49-1583) of the 606th SOS as the aircraft warms up prior to taxiing out for another mission over Laos during 1965. The long whip antenna under the fuselage is for an FM radio used for communications with ground troops. (N. Crocker via N. Taylor)

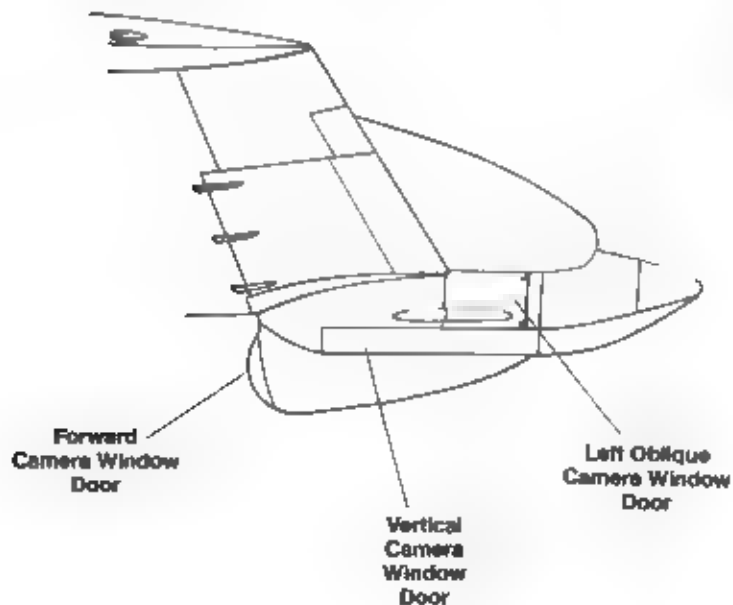
This T-28D (51-3815) was used by the 4407th SOW for training combat crews for duty in South East Asia. The Trojan is armed with two .50 caliber machine guns, a B37K1 flare rack, and LAU-32A rocket pods. The T-28D carries the standard TAC three tone uppersurface camouflage over Insignia White undersurfaces. (USAF via Earl Caudell)





The T-28D could be fitted with an external photo reconnaissance pod containing three aerial cameras. This RT-28D was assigned to the 314th Special Missions Squadron, VNAF based at Tan Son Nhut Air Base, South Vietnam during 1964. (Author)

RT-28D Camera Installation



A Laotian Air Force T-28D (49-1528) taxis out for another mission during 1968. The USAF provided Laos with a number of T-28D-5s under the Military Assistance Program, although most were flown by American pilots from the Raven Air Commando detachment. Laotian T-28s often flew without national insignia. (Norman Taylor)

A T-28D-5 (ex-USAF 50-0200) of the 222nd Tactical Fighter Squadron, Royal Thai Air Force (RTAF) parked on the ramp at Ubon Royal Thai Air Base. The Trojan is overall Light Gray with the fuselage stripe in White outlined in Dark Blue. The partially open canopy helped lessen the heat buildup in the cockpit under the relentless South East Asian Sun. (Norman Taylor)





A fully armed Fairchild AT-28D (51-3752) of the Philippine Air Force during a military display at Manila. The PAF has two squadrons of AT-28Ds with detachments spread throughout the island nation for anti-guerrilla strikes against Libyan supported Moslem terrorists. (Carlos L. Aguatin)



An armorer removes the safety pins from the .50 caliber machine gun pod on this AT-28D of the Philippine Air Force (PAF). The PAF received a number of Fairchild built AT-28Ds equipped with ejection seats, operating them in both the ground attack and training roles. (Carlos L. Aguatin)

This T-28D-5 of the Tactical Support Group, Bolivian Air Force is based at El Tejar, Bolivia. The FAB operated three T-28D-5s along with eight T-28As during the mid-1960s. The rudder stripes are (top to bottom) Red, Yellow, and Dark Green. (D. Hagedorn via Nicholas J. Waters III)



YAT-28E TURBO TROJAN

Combat operations conducted by the T-28Bs and T-28Ds assigned to the *Farm Gate* detachment in Vietnam had revealed a number of shortcomings in the T-28. These included a lack of power in the hot/high environment of South Vietnam, a short loiter time over the target, and the need for additional underwing stores pylons. These shortcomings led the Air Force to approach North American with yet another proposed modification to the T-28 airframe that would make it a more potent counter-insurgency aircraft.

In September of 1962 the Air Force awarded North American a contract to modify a T-28A airframe with a 2,445 hp Lycoming YT-55L-9 turboprop engine under the designation RA-28 (Reconnaissance-Attack). Shortly after the contract was let, however, the Air Force changed the designation of the prototype to YAT-28E (NAA model 284).

To install the Lycoming engine on the T-28A airframe the entire nose section forward of the firewall was redesigned. The new streamlined nose was longer, tapered and featured a large exhaust port on the port side of the fuselage just forward of the wing root. The propeller was replaced with an 11 foot 6 inch four blade Aero Products-A-1500 propeller which incorporated a large pointed propeller spinner to improve airflow to the engine. The redesigned nose section increased fuselage length to 36 feet, over three feet longer than a standard T-28.

Other modifications included a strengthened wing structure to accommodate twelve underwing pylons, larger wing flaps, increased aileron and rudder travel, improved brakes, and lengthened horizontal stabilizers. The YAT-28E carried 250 gallons of internal fuel, and had provisions for carrying two 110 gallon drop tanks on the inboard wing pylons. The maximum gross takeoff weight for the YAT-28E prototype was 15,530 pounds, some 7,000 pounds more than a fully loaded T-28D.

The YAT-28E was armed with two .50 caliber M-3 Browning machine guns in permanent underwing blisters with internal wing ammunition bays. The twelve underwing pylons could carry a total of 6,000 pounds of ordnance. One feature that, although appearing on the mock up, was never flight tested was the provision for mounting an AIM-9 Sidewinder air-to-air missile on each wing tip. The instrument and armament control panels remained virtually unchanged from earlier T-28s, although the YAT-28E was fitted with an improved Mk-20 Mod 4 gunsight.

The YAT-28E prototype was first flown on 15 February 1963. Early flight tests revealed that the Turbo Trojan had a top speed of 360 mph, a cruising speed of 276 mph, a rate of climb of 5,130 feet per minute, and a range of 2,760 miles (with external tanks).

On 27 March 1963, after making twelve successful test flights, the prototype was lost when it entered a flat spin during high G maneuvers and crashed, killing North American's chief test pilot George Hoskins. The Air Force, however, had been impressed with the YAT-28E's potential and ordered two additional prototypes. The second prototype featured further refinements of the airframe including a higher vertical stabilizer, a modified canopy to allow the use of North American LW-20 ejection seats, and structural strengthening of the entire fuselage. The second prototype joined the test program on 15 November 1963.

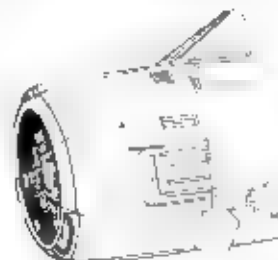
The third prototype was refined still further, featuring a reshaped canopy and a further increase in the height of the vertical stabilizer. With these changes, the third prototype most closely approximated the proposed production configuration of the Turbo Trojan and was the only prototype that was fully equipped for control from either cockpit.



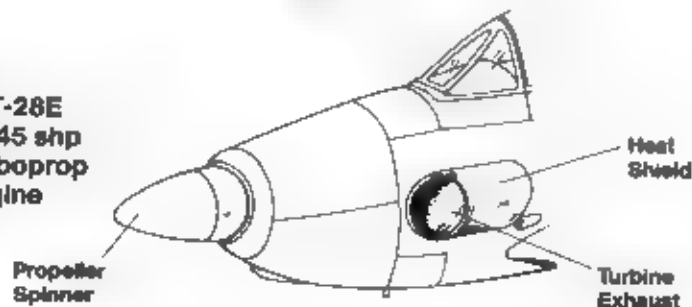
The YAT-28E prototype was developed to replace the T-28D in the COIN role and made its first flight on 15 February 1963 with North American test pilot George Hoskins at the controls. The YAT-28E was powered by a 2,445 shp turboprop engine and had a projected top speed of almost 400 mph. (Norman Taylor)

Nose Development

T-28A
800 hp Radial
Engine



YAT-28E
2,445 shp
Turboprop
Engine





The YAT-28E prototype could be armed with rockets and bombs on up to twelve underwing pylons in addition to the fixed .50 caliber machine gun pods. The ammunition for these streamlined gun gondolas was carried in the wings. The bright metal panel on the fuselage behind the exhaust is a heat shield which protected the fuselage from the engine exhaust. (Norman Taylor)

The first YAT-28E prototype was destroyed in a fatal crash after some fourteen hours of flight testing. The crash was caused by failure of the tail section during high G maneuvers. The second and third prototypes corrected this fault by strengthening the tail section. (Norman Taylor)



The Air Force and North American conducted a lengthy evaluation of the two YAT-28E prototypes over a period of some nine months. A number of problems were uncovered during testing and the Air Force concluded that further development of the YAT-28E would require extensive (and expensive) redesign. The engine needed further development, the exhaust system required a complete redesign, and there were other changes that, together, would require at least a year to complete. With the advent of the North American OV-10 Bronco and Cessna A-37 Dragonfly, the Air Force decided that further development of the YAT-28E was no longer cost effective and the project was terminated. Both YAT-28E prototypes were returned to North American during January of 1965 and placed in storage.

During early 1965 the Navy was searching for a new trainer to replace their fleet of T-28Bs and T-28Cs. One possibility being studied by the Navy was a turboprop version of the Trojan. Agreement was reached between Navy and Air Force officials under which the Navy was loaned the number three YAT-28E prototype for a period of one year to evaluate the aircraft for the training role.

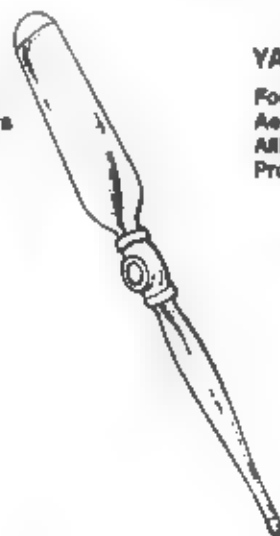
On 24 January 1966 a Navy team headed by LT Bob Sallada, began an evaluation of the prototype at North American's Columbus facility. A total of twenty-seven flights (401 hours) were conducted before the Navy ended the project. On 3 May 1966 the Navy issued its formal evaluation report which stated that the YAT-28 was unsuited for the training role for the following reasons: a restricted forward field of view while in a climb, an inadequate stall warning, overly heavy flight controls, visibility from the rear cockpit was restricted by the ejection seat, and the aircraft's performance was far in excess of training requirements even with a restricted throttle. Basically the Navy found that the YAT-28 was far too 'hot' an aircraft for students to fly. Once again the YAT-28Es were placed back into storage.

In the event, both aircraft were disposed of by North American to Mr. Merle Maine of Ontario, Oregon. Both airframes are reportedly in a state of disrepair and neither has an engine. The engine, gear box combination had been sold by North American to Piper for use in the Piper F-400, a turboprop conversion of the P-51 Mustang. It is therefore doubtful that either aircraft will ever fly again.

Propeller

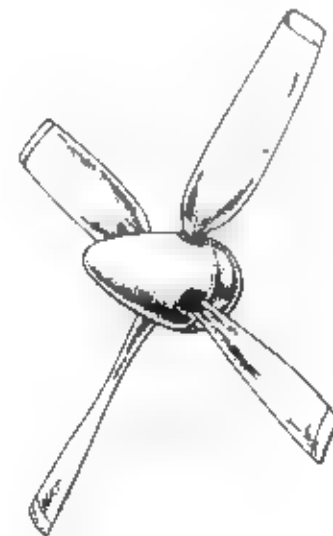
T-28A

Two Blade
Aero Products
Propeller



YAT-28E

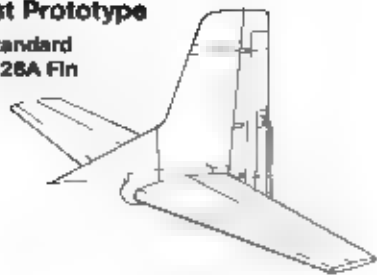
Four Blade
Aero Products
Allison
Propeller



YAT-28E Fin Development

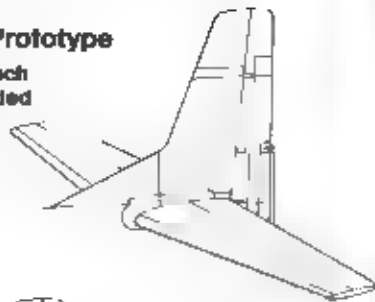
1st Prototype

Standard
T-28A Fin



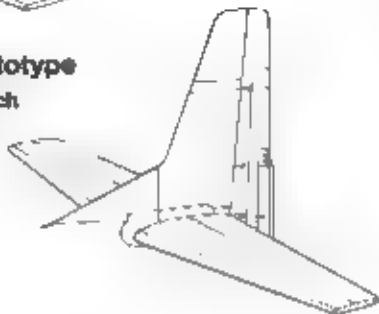
2nd Prototype

Nine Inch
Extended
Fin



3rd Prototype

Twelve Inch
Extended
Fin



The third YAT 28E prototype was the most extensively modified and closely approximated the proposed final production standard. The flat topped canopy allowed clearance for the ejection seats and improved rudder control. (SH, H. Miller via D. Menard)

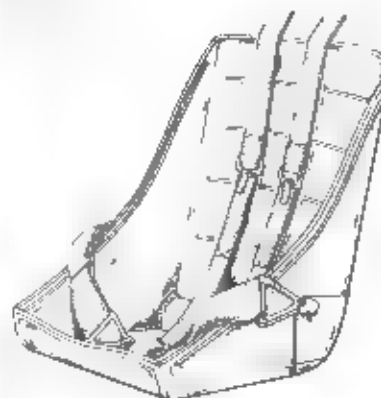
After the crash of the first prototype, the USAF ordered two additional YAT-28E prototypes for further evaluation. The second prototype (51-3785) featured a strengthened rear fuselage and heightened vertical stabilizer to increase rudder effectiveness. (USAF via Hugh Morgan)



Seats

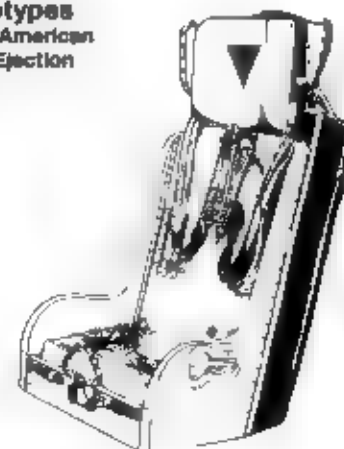
1st Prototype

Standard
T-28 Seat



2nd and 3rd Prototypes

North American
LW-2 Ejection
Seat



T-28S FENNEC

During 1954 the French became embroiled in their second colonial war since the end of World War II. They had lost their colony in Vietnam and now faced a similar insurgency in Algeria. The war began in November of 1954 with the formation of the Algerian *Front de Liberation Nationale* (FLN) and its military wing the *Armee de Liberation Nationale* (ALN) under the leadership of the Algerian nationalist Ahmed Ben Bella. From the beginning, *Armee de l'Air* (French Air Force) units were committed against the insurgents, although initially the air units in Algeria were inadequately equipped to fight a guerrilla war.

The role of the *Armee de l'Air* in Algeria quickly evolved into one of support for the ground forces. Primary missions included reconnaissance, air transport, medical evacuation, and close air support. One of the most numerous aircraft types committed to Algeria were armed T-6 Texans. These armed trainers equipped the *Escadilles d'aviation legere d'appui* (EALA - light attack squadrons) and by 1956 there were at least thirteen such squadrons in combat against the Algerian insurgents.

The Texan, while praised for its ease of maintenance, good handling qualities, and rugged construction was found to be highly vulnerable to ground fire. It was also limited in the armament it could carry under the hot Algerian desert conditions. By late 1959, the French Air Staff had begun searching for a suitable aircraft to replace the T-6. At the time, the French aviation industry had no aircraft in production that could be modified for the counter-insurgency (COIN) role, so the French turned to the United States for a suitable replacement.

After studying a number of available aircraft the French, recognizing the potential of the T-28 in the counter-insurgency role, requested that the US provide the *Armee de l'Air* with 148 surplus T-28As held in storage at Davis-Monthan AFB, Arizona. The *Armee de l'Air* had originally wanted to purchase the more powerful T-28B, however because the Navy had priority on new production T-28Bs, these aircraft would be unavailable to meet French needs for a considerable time.

During 1958, Pacific Airmotive of Burbank, California purchased the rights for a North American developed civil variant of the T-28 called the Nomad. Pacific Airmotive offered the aircraft on the civil market with two different engine options, a 1,300 hp R-1820-56S Wright Cyclone or a 1,425 hp R-1820-76A Wright Cyclone, both driving a Hamilton Standard three blade propeller.

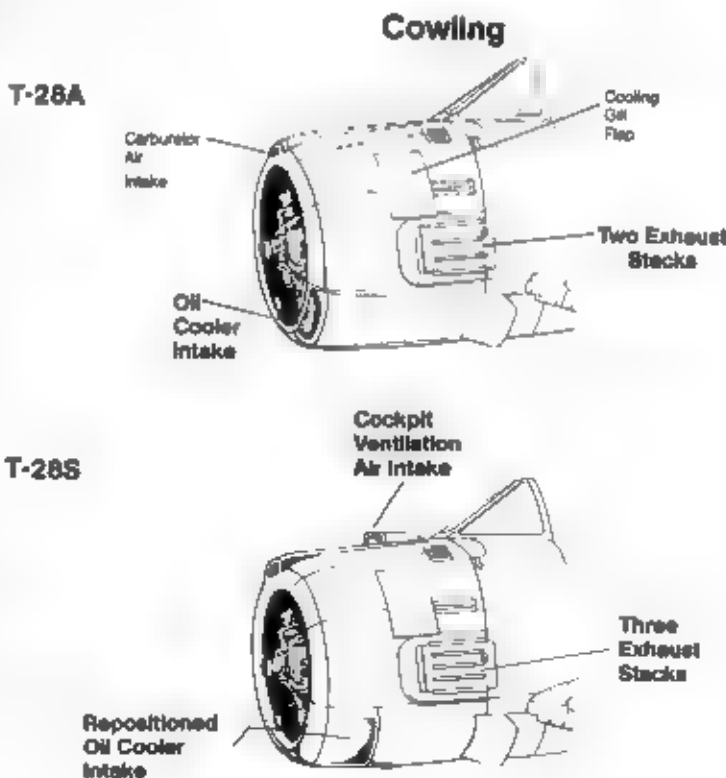
The French, impressed with the performance gained with the 1,425 hp engine, decided to re-engine the T-28As. They named Pacific Airmotive as the contractor to perform the initial engine change modification and prepare the engineering data for a rebuild program which would be conducted in France. The modification program included replacing the 800 hp Wright R-1300-1A engine with the 1,425 hp R-1820-76A engine, replacing the two blade Aero Products propeller with a three blade Hamilton Standard propeller, increased cockpit ventilation, and the installation of armament and armor. These modified T-28As were redesignated the T-28S and were given the name *Fennec* (an Algerian desert rat). A single pattern aircraft was produced by Pacific Airmotive, using a 1,425 hp R-1820-76A Wright Cyclone engine rebuilt from a B-17G engine core (all subsequent engines used in the T-28S program were also rebuilt surplus B-17 engines).

The cowling of the T-28S was modified to T-28B standard and an additional air scoop was mounted on the upper portion of the cowling immediately in front of the windshield. This air scoop is the primary identifying feature that distinguishes the T-28S from all other T-28 variants and supplied air for additional cockpit ventilation.

The original T-28S (serial 51-3593), now known as *Fennec* No. 01, along with three other converted airframes, engineering data, the remaining 144 unconverted airframes, and the rebuilt engines were shipped to Sud Aviation at St. Nazaire, France, during July of 1959. Here the engines were installed and the aircraft further modified to meet French combat standards. These modifications included, reversal of the throttle operation in



A T-28S Fennec (No. 32) of EALA 3/10 at Beina, Algeria during 1961. This Fennec was acquired by France in September of 1960, deployed to Algeria in late 1960, and destroyed in action on 23 April 1962. Fennecs were normally overall Natural Metal with a Black anti-glare panel. (Norman Taylor)



the cockpit, French cockpit instrumentation, sand filters on the engine air intakes, armor protection for the crew, underwing gun pods, and two underwing weapons pylons. Reportedly, the costs of these modifications was high, upwards of \$100,000 per aircraft (the initial purchase price of the surplus T-28As from the US government was only \$4,000 per aircraft). After a series of tests, the original *Fennec* prototype was destroyed during 1960 while on a test flight.

The T-28S were equipped with a French designed armament system. The wings were strengthened internally to enable the aircraft to carry two gun pods and two underwing pylons. The French designed gun pod contained two 12.7MM (50 caliber) machine guns and their ammunition. Other underwing stores options included 200 kilogram (440 pound) short tail bombs, seven shot or thirty-six shot 2.75 inch rocket pods, free rockets of 68MM, 105MM, or 120MM, and SFCAM type 51 bombs. Installed radio equipment was kept to a minimum to reduce weight, normally consisting of a VHF radio and a radio compass.

The T-28S re-equipped four of the T-6 EALAs in Algeria during August of 1960, with EALA 3/09 becoming the first squadron to reach operational status. By the middle of 1961, EALA 3/09, 3/04, 3/10 and 3/05 were up to full strength, with over 100 aircraft available for combat operations. In the event, *Armee de l'Air* combat operations with the T-28S would be short lived. Shortly after the aircraft were committed to combat, the French government and the Algerian insurgents reached an agreement for a nationwide election which would decide the future of Algeria. By the end of 1962, *Armee de l'Air* operations in Algeria were halted and the majority of the aircraft were returned to France. T-28S losses in Algeria had been fairly light with a total of twenty-three aircraft being lost either to accidents or in combat. A number of T-28S aircraft that were returned to France were used to equip *Escadrille Regionales d'Aviation legere d'Appui* (Regional light attack squadrons) stationed at various bases throughout France, while others were used in the training role.

With the end to the fighting in Algeria a number of *Fennecs* were declared surplus and sold on the international market. The Royal Moroccan Air Force received twenty-five *Fennecs*. These aircraft were used to patrol the troubled border between Morocco and Algeria, occasionally seeing combat during border flare-ups. When the Moroccan Air Force began retiring some of these aircraft during the late 1960s at least nine *Fennecs* were delivered to Haiti.

The *Fennecs* delivered to Haiti arrived without armament, and to arm the aircraft for border patrol and internal security missions the Haitian Air Corps configured a number of the *Fennecs* with a locally produced gun installation. The gun installation consisted of an unpodded M3 .50 caliber machine gun mounted under each wing, with the ammunition can being enclosed with a small streamlined blister. A number of these same aircraft were later impounded by the US government, after an attempt by Nicaraguan General Somoza to fly them from Haiti, via Miami, to Nicaragua during 1971. Somoza had intended to use the *Fennecs* to bolster his force of seven armed T-28As (and at least one T-28D) in his war against the Sandanista insurgents.

In the event, the Haiti *Fennecs* were eventually replaced, during 1978, by Cessna 337/ O-2 Super Skymasters and sold to an aircraft broker in Tucson, Arizona.

During 1978 the last fifteen *Fennecs* remaining in service with the Royal Moroccan Air Force were retired and sold to Honduras, however, once again these aircraft were embargoed in the US during transit (due to financial problems) and it is doubtful that any were actually delivered.

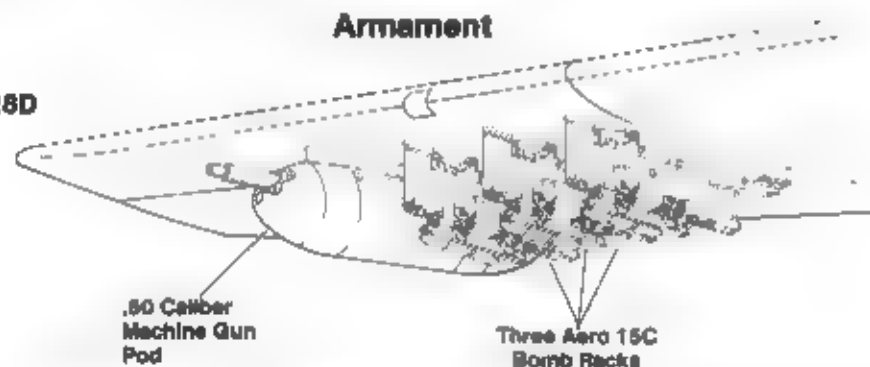
When France began retiring the remaining *Fennecs* from active service during 1967, the aircraft found a ready market overseas. Argentina acquired sixty-two *fennecs* for use by both the Air Force and Navy. Argentine Navy *fennecs* received the local designation T-28P and a number had the underwing pylons rewired to carry the Martin Pescador air-to-surface missile for anti-shipping duties. Later Argentina sold nine of the *Fennecs* to Uruguay. Reportedly, Formosa and Mainland China each received one aircraft from French stocks.



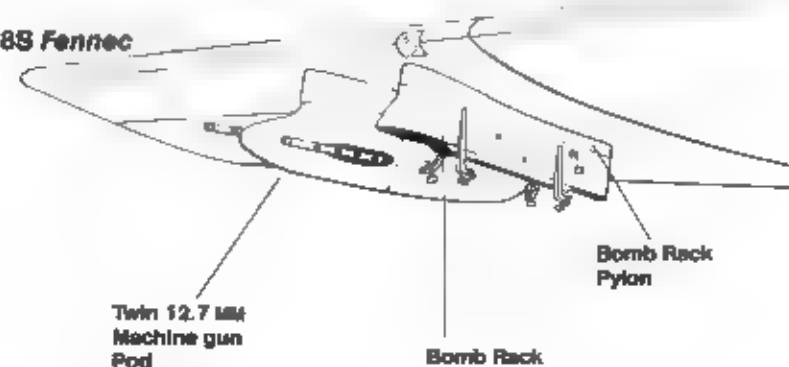
The gun pods carried on the *Fennec* were of French design and mounted two 12.7 mm machine guns and their ammunition. This *Fennec* of EALA 01/39 at Lyon, France, was modified to see service in Algeria and was later sold to Argentina during 1967. (Norman Taylor)

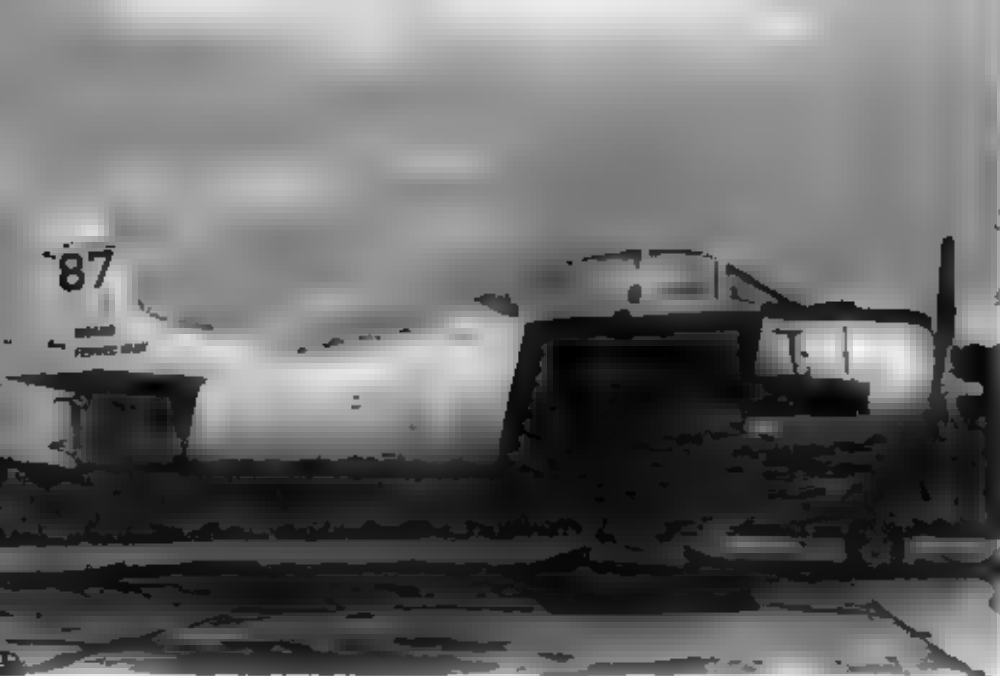
Armament

T-28D



T-28S Fennec





The faded markings of its former squadron, EALA 3/09, are faintly visible on this T-28B (No. 87 ex-USAF 51-3582) of ERALA 01/36 based at Toulouse, France. The aircraft was declared surplus during 1966 and was one of sixty-two Fennecs supplied to Argentina. (Norman Taylor)

A T-28B Fennec (No.42, ex-51-3690) of ERALA 3/37, a reserve Armée de l'Air squadron based at Lyon, France during the mid-1960s. This T-28B had served in combat with EALA 3/10 in Algeria and would be supplied to Morocco during 1965. (Norman Taylor)



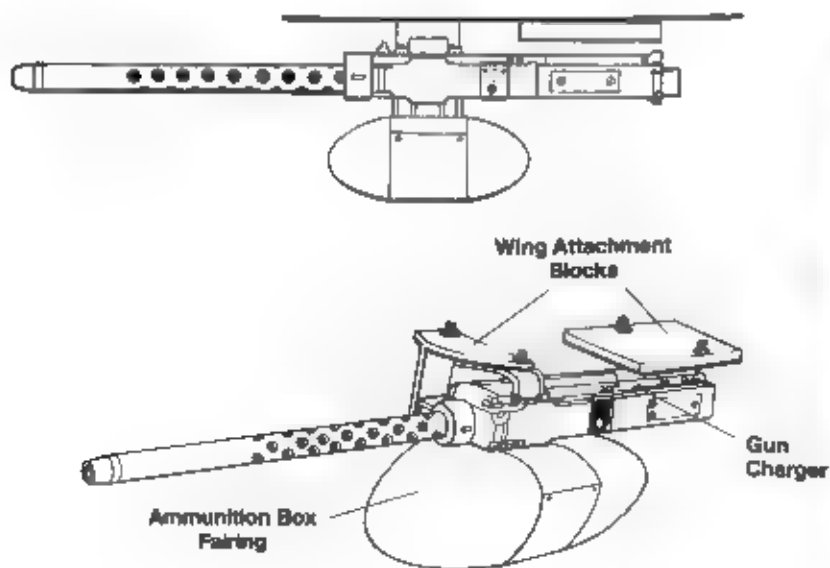
Not all the surplus T-28As supplied to France were early high canopy models. Roughly one-third were the late model T 28As with the lower canopy, such as this Fennec (No. 134, ex-USAF 51-7742) assigned to ERALA 01/28 at Bordeaux Air Base, France. (Norman Taylor)

The Argentine Navy received sixty-two surplus Fennecs from France during 1966/67. This Fennec of the 1st Naval Attack Squadron served in the training and ground attack role, operating from Punta De Indio, Argentina, until replaced by Beechcraft T-34C Turbo Mentors during 1980. (D. Hagadorn via Nicholas J. Waters US)





Haitian .50 Caliber Machine Gun Installation



Still in its Moroccan Air Force camouflage of Sand uppersurfaces over Light Blue undersurfaces, this Fennec was impounded by US Customs at the Miami International Airport during the early 1970s while the aircraft was enroute from Morocco to Honduras. The aircraft carries a Honduran civil registration (HR 251A) on the fin and name *BROKEN PROMISE* on the cowling in Red. (Nicholas J. Waters III)

The French sold a large number of Fennecs on the international market. This T-28S was supplied to Haiti and carried locally installed .50 caliber machine guns under the wings. It is believed that the Belgian FN machine gun on the ramp was carried by the rear seat crewman while in flight. (Nicholas J. Waters III)



T-28 Derivatives

Volpar A-28F

Perhaps the most unusual modification ever considered for the T-28 airframe was the Volpar A-28F multi-role combat aircraft. During 1972 Volpar Inc. of Van Nuys, California, announced a conversion program for the T-28 that would convert surplus T-28 airframes into turboprop powered multi-mission combat aircraft capable of undertaking a wide variety of missions. These missions included: ground attack, photographic reconnaissance, electronic-counter-measures (ECM), cargo delivery, forward air control (FAC), and training.

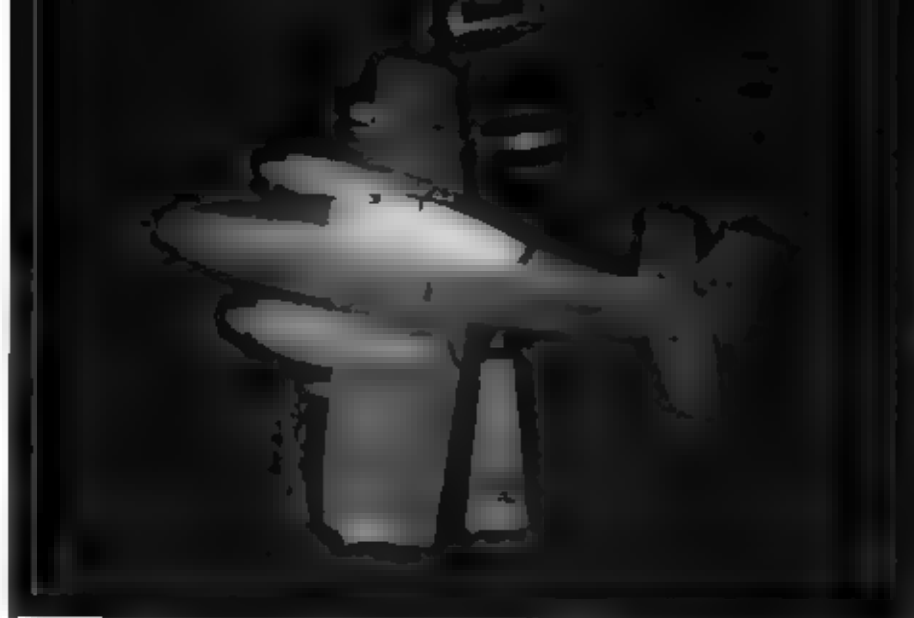
The Volpar A-28F conversion consisted of replacing the T-28's piston engine with two 904 hp Garrett TPE 331-3U1 turboprop engines mounted on the wings, even with the main landing gear assembly (by installing the engines at this wing position, the existing underwing ordnance hard points were left intact). The engines and nacelles were off-the-shelf Volpar products marketed under the name "Packaged Power Conversions." The "Packaged Power" units had been proven in widespread use on other aircraft which had been converted from piston to turbine power such as the Beechcraft Model 18 and Grumman Goose. Additionally, the engine was basically the same as the military T-76 turbine used to power a number of military helicopters in service around the world.

The most unusual feature of the A-28F was the nose section. With the removal of the piston engine, the A-28F nose section was redesigned from the engine firewall forward. The new nose had a more streamlined pointed shape with a large internal volume. The entire nose section was detachable and Volpar had designed a number of alternate mission nose sections which were all interchangeable. This allowed the A-28F to be quickly reconfigured from attack (four 50 caliber machine gun nose section), to electronic counter measures (ECM), photo reconnaissance (camera configured nose section), or other missions.

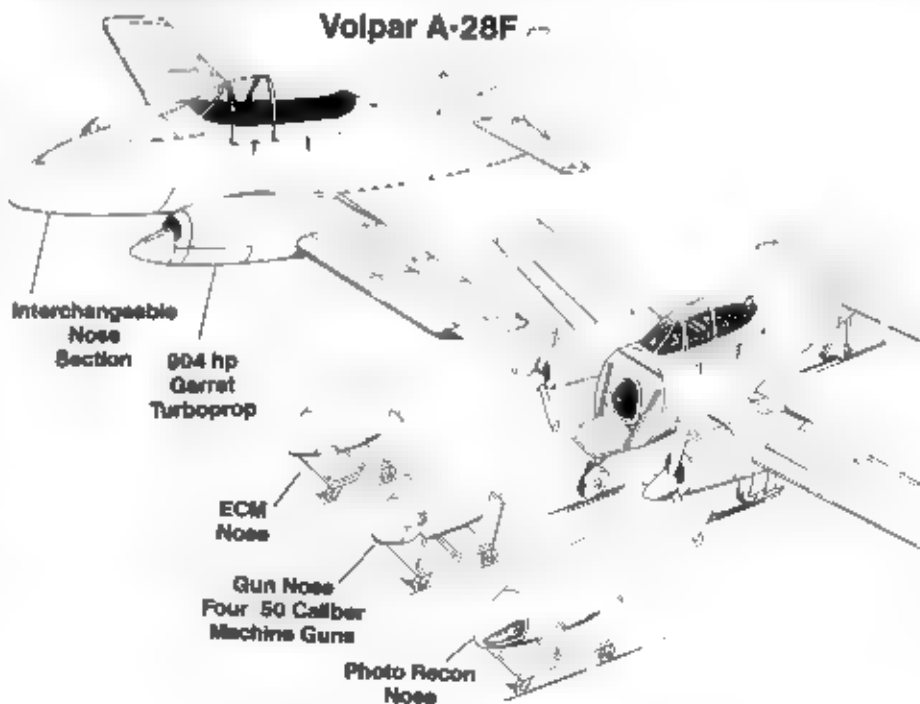
The Volpar A-28F was configured with up to six underwing hard points (basically a T-28D-5 wing structure) capable of carrying up to 4,000 pounds of ordnance. To increase the flexibility of the aircraft, provision was made for various combinations of fuselage and wing fuel tanks which gave the prospective operator the option of either 300 gallons or 400 gallons of internal fuel. Other options available included, provision for single or dual ejection seats, armor protection for the cockpit and engines, and varied radio and electronics installations.

Projected performance figures for the A-28F included a top speed of 330 mph, a 3,200 feet per minute rate of climb, a service ceiling of 28,000 feet, and a range of 1,540 miles (2,800 miles with two 165 gallon external tanks). Maximum gross takeoff weight was projected at 2,000 pounds. According to Volpar figures, the A-28F would have been a very economical aircraft to operate, with only half the mission costs of the Cessna A-37 Dragonfly.

The A-28F, however, never progressed beyond the proposal/engineering study stage. A model of the projected A-28F was built to display for prospective buyers, however, Volpar failed to attract the interest of the USAF or foreign governments and further development of this unique T-28 derivative was abandoned.



Volpar Inc. proposed a conversion program that would convert surplus T-28s into turboprop powered multi-mission aircraft under the designation A-28F. The Volpar A-28F, however, failed to gain sufficient interest to warrant production, and never progressed beyond this display model. (Volpar)



Aero Industry Development Center T-CH-1

The Nationalist Chinese Aero Industry Development Center (AIDC) was established on 1 March 1969 in a effort to form the beginnings of an aeronautical industry in Taiwan. The AIDC operates under the control of the Chinese Nationalist Air Force (CNAF) as the research and production arm of the CNAF. Initial production activity centered around licensed production of the Bell UH-1 Huey helicopter and Northrop F-5E/F Tiger II fighter/trainers for the CNAF.

The first indigenous design undertaken by the AIDC was a turboprop powered derivative of the T-28A, then in service with the CNAF as an advanced and armament trainer. Preliminary design work began in November of 1970 with the AIDC being authorized to build two prototypes, designated XT-CH-1A (trainer) and XT-CH-1B (an armed trainer/light attack). The conversion involved replacement of the 800 hp Wright Cyclone engine with a license built 1,450 shp (shaft horse power) Lycoming T53-L-701 turboprop engine. The nose was recontoured with a long tapered cowl, ending with a sharply pointed propeller spinner which housed a three blade propeller. The new nose section increased the overall length of the modified T-28A to 33 feet 8 inches (from 32 feet 10 inches). The twin exhaust stacks for the turboprop engine were mounted just forward and below each wing leading edge.

The XT-CH-1A prototype first flew on 23 November 1974, followed by the XT-CH-1B on 27 November 1974. Following flight tests and evaluation by the CNAF the XT-CH-1B was selected for production and a production contract for fifty aircraft, under the designation T-CH-1, was awarded. Production started in May of 1976 and by early 1981, all fifty aircraft had been delivered. The T-CH-1 entered service with the CNAF during mid-1981. Initially the new trainer served alongside the surviving T-28As, however, as more aircraft were delivered, it eventually replaced the T-28 in the trainer role. The CNAF has found the T-CH-1 to be ideally suited to the role.

Rated as the most powerful turboprop powered trainer in the world, the T-CH-1 has a performance somewhat superior to the T-28B. At a normal takeoff weight of 7,500 pounds, the T-CH-1 has a top speed of 368 mph, an initial rate of climb of 3,400 feet per minute, a service ceiling of 32,000 feet, and a range of 1,250 miles. The T-CH-1, however, does not require expensive high octane aviation gasoline, making the type more economical to operate than any previous T-28 variant. Additionally, the T-CH-1 has provisions for underwing pylons capable of carrying gun and/or rocket pods giving the aircraft a limited close air support capability.

Production ceased during late 1981 and, since no foreign buyers have expressed an interest in the aircraft, it is unlikely that the production lines will be reopened.

Four T-CH-1s of the Nationalist Chinese Air Force prepare for another training sortie. The T-CH-1 is a turboprop powered version of the T-28 and is rated as the most powerful turboprop trainer in the world today.

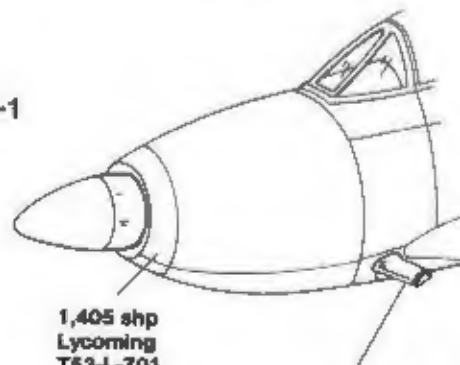


T-CH-1s of the Nationalist Chinese Air Force now carry a three tone camouflage scheme very similar to the US Air Force Tactical Air Command camouflage carried on T-28Ds in Vietnam.

Cowling



T-28A



AIDC T-CH-1

1,405 shp
Lycoming
T53-L-701
Turboprop

Turbine Exhaust

T-28R-1

During the late 1950s, the Hamilton Aircraft Company of Tucson, Arizona began offering conversions of surplus T-28As for the civil market under the name T-28R Nomair. These conversions consisted of replacing the 800 hp Cyclone engine with a 1,350 hp R-1820-56A Wright Cyclone engine, replacement of the two blade Aero Products propeller with a Hamilton Standard three blade propeller, and the provision for additional internal fuel capacity.

Two basic models of the Nomair were produced; a civil variant under the designation T-28R-2 and a military trainer variant produced under the designation T-28R-1. The T-28R-2 civil variant featured seating for up to five people (pilot and four passengers) under a fixed canopy with a side entry door.

During 1962 the Brazilian Navy ordered six T-28R-1s for service aboard the Brazilian aircraft carrier MINAS GERAIS. These aircraft were navalized with the addition of arresting gear. The arresting gear modification differed from the US Navy T-28C in that the hook was mounted externally under the fuselage much further forward than on the T-28C. Additionally the engine cowlings on the T-28R-1 differed from all other T-28s with a shorter carburetor air intake on the top of the cowlings, and modified engine exhaust system which eliminated the exhaust stacks on the cowlings sides. Engine exhaust was now vented from a single exhaust port on the lower starboard side of the cowlings. After a brief service with the Brazilian Navy, the T-28R-1s were later taken over by the Brazilian Air Force and used by the 2nd Liaison and Observation Squadron at Sao Pedro de Aldeia.

A Hamilton T-28R-1 Nomair conversion of the Brazilian Air Force. Originally these aircraft were ordered for the Brazilian Navy and fitted with arrestor hooks for operations off the Brazilian aircraft carrier *Minas Gerais*. (Nicholas J. Waters III)

Cowling

T-28A

Carburetor Intake

Cooling Gills

Exhaust Stacks

T-28R-1

Short Carburetor Intake

Faired Over Exhaust Stacks

Single Exhaust Stack (Starboard Side Only)



T-28s Today

As T-28s have become available on the surplus market a number have been purchased by private owners. T-28s are now a common sight at airshows and gatherings of "Warbird" enthusiasts. The popularity of the T-28 on the civil market centers around its ease of maintenance, low operating costs per flight hour, and a low initial purchase price. Civil owners wishing to restore surplus T-28s are aided by the North American Trainer Association (formerly the T-6 Owners Association) of Shingle Springs, California. This organization currently publishes a newsletter, assists T-6 and T-28 owners in locating spare parts, and keeps files on the location and availability of surplus T-28s. Another organization that promotes the restoration of T-28s and other carrier borne aircraft is the Tailhook Association, of Bonita, California. Membership in the Tail Hook Association has one requirement; you must have made an arrested carrier landing either as pilot, aircrew, or passenger.

Although the T-28 is being rapidly phased out of military service around the world, the T-28 Trojan will long be remembered as the propeller driven trainer that brought the Air Force and Navy into the jet age, and the fighter-bomber that bore the brunt of the early air war in Vietnam and other hot spots around the world.



This civil registered T-28C (N9022Y) at Forbes Field in Topeka, Kansas, has been restored with Blue Angels markings, even though the Blue Angels never flew the T-28. T-28s are popular with civil pilots because of their low operating costs. (Ted Rubin)

Although fitted with a three blade Hamilton Standard propeller, this Trojan is a T-28A (ex-USA 51-7691) now registered as N3313G. The aircraft has been fully restored and carries the markings and color scheme of the Air Force Air Training Command. (Ted Rubin)

This civil registered T-28C (N9022N) still carries the markings of VT-5 and the Davis-Monthan AFB storage location number (48T031) on the cowling. The aircraft was scheduled for restoration during 1983. (Ted Rubin)





A T-28A of the Air Training Command (ATC) on a routine training mission. T-28As were used by the ATC until 1956 when they were replaced by the Beechcraft T-34 and Cessna T-37.

Although carrying the markings of the Vietnamese Air Force (VNAF), this modified T-28B was flown by USAF pilots assigned to the Farm Gate detachment. Farm Gate pilots trained VNAF T-28 aircrews and flew ground support missions with a Vietnamese observer in the back seat.

